INSECTS OF MICRONESIA
Coleoptera: Elateridae[1]

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INTRODUCTION

This report on the Elateridae of Micronesia is based on about 1,000 specimens collected for the Insects of Micronesia survey. The United States Office of Naval Research, the Pacific Science Board (National Research Council), the National Science Foundation, and Bishop Museum have made this survey and the publication of the results possible. Field research was aided by a contract between the Office of Naval Research, Department of the Navy, and the National Academy of Sciences, NR 160-175.

The Micronesian Elateridae comprises 67 species and two subspecies, belonging to 11 subfamilies and 17 genera. These figures include two recorded species which are not in the survey collections. In this report 32 species and two subspecies are described as new; their types are deposited in various institutions, as indicated in the text. The following symbols are used to indicate the repositories where the types will be found of the insects described here for the first time: US (United States National Museum), BISHOP (Bernice P. Bishop Museum), CAS (California Academy of Sciences), CM (Chicago Natural History Museum), and HSPA (Experiment Station, Hawaiian Sugar Planters' Association, Honolulu).

I am indebted to Dorothy Rainwater for preparing the drawings, to T. Y. Yamamoto for the photographs, and to J. Linsley Gressitt and J. W. Beardsley for geographical information.

ZOOGEOGRAPHY

The family Elateridae is well represented in Micronesia. Of the 69 species and subspecies found there, 50 appear to be endemic. Only in the Volcano

[1] This represents, in part, Results of Professor T. Esaki's Micronesian Expeditions (1936-1940), No. 87.

Islands is the family not represented. There are two species on Marcus, one belonging to a Palearctic genus, the other a Micronesian species; two probable immigrants occur in the northern Marianas; and two introduced species are found on Wake. There are eight species in the Bonins, five of them probably immigrants from Japan; the other three appear to be endemic.

In the southern Marianas are 19 species, 12 of them endemic to Micronesia. Four, including one Philippine species, are restricted to the Island of Guam; three are cosmotropical; and two are definitely Philippine.

Of the 21 species in the Palaus, 18 are endemic to Micronesia. Two of the immigrant species are from New Guinea, the other from the Moluccas. The four species on Yap are all endemic to Micronesia, and two of them are endemic to Yap itself. The Caroline atolls have nine species, six of them endemic to Micronesia, the others, one each originating in Polynesia, are from New Britain and the New Guinea-Philippines area.

Six of the seven Elateridae from Truk are endemic to Micronesia, the other is from New Guinea or the Philippines. Ten species occur on Ponape, nine of them endemic, the other from New Britain. Kusaie has eight endemic and two immigrant species, the latter Polynesian.

There are seven species in the Marshalls, one doubtfully endemic; five of the others derive from Polynesia and one, from New Britain. In the Gilberts, including Ocean and Nauru Islands, five immigrant species occur, four of them from Polynesia, the other from New Guinea.

The Micronesian Elateridae are distributed among the following subfamilies: Adelocerinae, five species; Hemirrhipinae, six; Dicrepidiinae, two; Athoinae, one; Pachyderinae, 20; Conoderinae, two; Ampedinae, 26; Physorrhininae, three; Cardiophorinae, one; Melanotinae, two; and Elaterinae, one. Of species endemic to Micronesia there are in the southern Marianas one adelocerine, two hemirrhipines, four pachyderines, and five ampedines. In the Palaus are one adelocerine, three hemirrhipines, three pachyderines, eight ampedines, two physorrhinines, and one melanotine.

The movement of elaterids from island to island, even for long distances, does not pose great difficulties. Adults may be transported with materials in which they have hidden; and their immature stages may be moved about with soil, with plant materials, or in driftwood. The finding of a California species of *Anchastus* in a plane arriving on Guam is a case in point; and similar interceptions of elaterid beetles have been made in Honolulu. Many larval Elateridae are general predators and, as such, may be useful in some degree to man. For instance, J. L. Gressitt found an *Alaus* larva preying on *Oryctes* grubs in coconut logs in the Palaus. Some species are crop pests. As an example, larvae of a *Compsolacon* damage peanut plantings in the Solomons. Other species are either predaceous or phytophagous, as opportunity permits.

The Elateridae of Micronesia show their closest affinities with those of New Guinea and the Philippines. Of the non-endemic species, those in the Bonins are of Japanese origin, whereas immigrants in the Marshalls and Gilberts are overwhelmingly Polynesian.

The affinities with New Guinea and the Philippines in the southern Marianas and the Palaus are especially marked among the Adelocerinae and Hemirrhipinae. The Ampedinae, a dominant element in the Philippine elaterid fauna, are well represented in western and central Micronesia. The numerical prominence of the Pachyderinae in this report is due to the treatment given here to *Simodactylus,* a genus which is apparently poorly represented in New Guinea and the Philippines, but one which needs study in both areas.

SYSTEMATICS

Distribution records for each species are arranged geographically from north to south, from the Bonins to Guam; then from west to east, from the Palaus to the Gilberts. Within the Palau group records are from north to south.

Table 1.—Comparison of Pacific Island Elaterid Faunas

	Micronesia	Hawaii	Marquesas	Samoa	Fiji	New Guinea	Moluccas	Philippines
Adelocerinae	5	1	1	2	3	23	6	28
Hemirrhipinae	6	....	....	1	5	26	11	10
Dicrepidiinae	2	....	....	7	3	2	1	4
Athoinae	1	....	....	....	....	....	....	....
Pachyderinae	20	1	1	3	5	4	2	4
Conoderinae	2	4	1	1	2	17	3	10
Ampedinae	26	34	13	3	7	12	4	61
Physorrhininae	3	1	....	....	3	9	....	3
Cardiophorinae	1	....	....	....	....	4	2	11
Melanotinae	2	....	....	....	....	4	2	24
Elaterinae	1	....	....	....	1	1	....	8
Endemic species, subspecies	50	44	15	14	32	?	?	?
Total no. species, subspecies	69	52	16	17	39	118	32	204
Subfamilies containing endemic species	7	3	3	4	10	17	8	16
Total no. subfamilies represented	11	7	4	6	10	17	8	16

Table 2.—Distribution of Micronesian Elateridae

	Micronesian Island Groups											Other Localities
				Caroline								
	Bonin	N. Mariana	S. Mariana	Palau	Yap	Caroline Atolls	Truk	Ponape	Kusaie	Marshall	Gilbert	
Adelocerinae												
1. Lanelater bifoveatus			G*									Philippines
2. Lacon modestus			×								×	Polynesia
3. Compsolacon cognatus			×				×	×	×			
4. C. mäklini	×											Japan
5. Meristhus scobinula			×									China; Japan; U.S.A.
Hemirrhipinae												
6. Alaus depressicollis				×								
7. A. guamensis			×	×								
8. A. putridus	×											Japan; Formosa; Java
9. Tetrigus lewisi	×											China; Japan
10. T. palauensis				×								
11. T. townesi			×									
Dicrepidiinae												
12. Propsephus langfordi	×											
13. P. tongaensis										×	×	Polynesia
Athoinae												
14. Harminius sp.												Wake
Pachyderinae												
15. Simodactylus trukensis							×					
16. S. beardsleyi							×					
17. S. nitens								×				
18. S. marianarum			×									
19. S. hesperius			×				×		×			
20. S. h. pullus								×				
21. S. gressitti				×								
22. S. exsul			×									
23. S. impressus					×							
24. S. decoratus								×				
25. S. decumanus								×				
26. S. collinus									×			
27. S. fasciolatus						×		×		×		New Britain
28. S. remotus					×	×						
29. S. palauensis				×								
30. S. lineatus						×			×			
31. S. tasmani										×		Fiji
32. S. cinnamomeus									×			Polynesia
33. S. pallidus		×	×	×		×	×					Wake
34. S. tastui											×	Samoa; Solomons
Conoderinae												
35. Conoderus pallipes		×	×						×	×	×	Wake; Polynesia
36. C. umbraculatus											×	New Guinea

* G instead of × under southern Mariana indicates Guam only.

Table 2.—Distribution of Micronesian Elateridae (continued)

	Micronesian Island Groups											Other Localities
				Caroline								
	Bonin	N. Mariana	S. Mariana	Palau	Yap	Caroline Atolls	Truk	Ponape	Kusaie	Marshall	Gilbert	
Ampedinae												
37. Ampedus bifoveolatus	X											
38. Megapenthes near japonicus	X											Japan
39. M. brunniventris			X	X		X	X					Wake; New Guinea; Philippines
40. M. carinifrons				X								
41. M. disjunctus			X			X			X			
42. M. subinconditus				X								
43. Melanoxanthus divergens				X								
44. M. festivus				X								
45. M. guamensis			G									
46. M. cracens				X								
47. M. varians			G					X				
48. M. dissitus			X	X				X				
49. M. argus									X			
50. M. luteus							X					
51. M. l. aquilus				X								
52. M. minor								X				
53. M. lepidus				X								
54. M. arcuatus			G									
55. M. melanocephalus			X									Polynesia to Africa
56. M. sannio				X								
57. M. lariversi										X		
58. M. venustus						X						
59. M. comptus			X	X		X			X	X		Solomons; Samoa; Fiji
60. M. silus					X							
61. M. similis									X			
62. M. simplex								X	X			
Physorrhininae												
63. Anchastus trukensis							X					
64. A. incertus				X								
65. A. dybasi				X								
Cardiophorinae												
66. Platynychus adjutor ?	X											Japan; Formosa
Melanotinae												
67. Neodiploconus exilis				X	X	X						
68. N. boninsis	X											
Elaterinae												
69. Neotrichophorus erubescens				X								

KEY TO SUBFAMILIES OF MICRONESIAN ELATERIDAE

1.	Prosternal sutures deeply excavate, in part or for entire length	ADELOCERINAE
	Prosternal sutures not deeply excavate; at most, separated anteriorly	2
2(1).	Frontal carina of head entire	3
	Frontal carina of head incomplete on middle	ELATERINAE
3(2).	Scutellum cordiform; lateral carina of prothorax incomplete; propleuron with curved, longitudinal suture	CARDIOPHORINAE
	Scutellum oval or triangular; lateral carina of prothorax complete; no curved longitudinal suture on propleuron	4
4(3).	Tarsal claws with bristles; interocular carina thickened	HEMIRRHIPINAE
	Tarsal claws without bristles; interocular carina fine	5
5(4).	Claws simple	6
	Claws pectinate	MELANOTINAE
6(5).	Tarsal segments 2 and 3 lamellate, or 2, 3, and 4 widened	7
	Tarsi simple, or with a single segment lamellate	8
7(6).	Tarsal segments 2 and 3 lamellate, not dilated	DICREPIDIINAE
	Tarsal segments 2, 3, and 4 widened; 4 usually widely dilated	PACHYDERINAE
8(6).	Hind coxal plates strongly widened within	9
	Hind coxal plates not widened inwardly	ATHOINAE
9(8).	Tarsal segment 4 lamellate or prolonged posteriorly	CONODERINAE
	Tarsal segment 4 neither lamellate nor prolonged	10
10(9).	Tarsi simple	AMPEDINAE
	Tarsal segment 3 lamellate or lobed	PHYSORRHININAE

ADELOCERINAE

KEY TO MICRONESIAN GENERA OF ADELOCERINAE

1.	Prosternal sutures open throughout their length	2
	Prosternal sutures closed posteriorly	3
2.	Propleura without grooves for reception of tarsi (*olim Agrypnus*)	**Lanelater**
	Propleura each with impressed groove for reception of fore tarsus	**Lacon**
3.	Scutellum longitudinally carinate; tarsal grooves on propleura	**Meristhus**
	Scutellum not carinate; no tarsal grooves on propleura	**Compsolacon**

Genus **Lanelater** Arnett

Lanelater Arnett, 1952, Wasmann Jour. Biol. **10**: 105 (type: *Agrypnus schotti* LeConte; Texas).

1. Lanelater bifoveatus (Candèze). (Figure 1, *a.*)

Agrypnus bifoveatus Candèze, 1857, Monogr. Élat. **1**: 41 (type in British Museum).—Van Zwaluwenburg, 1942, B. P. Bishop Mus., Bull. **172**: 53.

DISTRIBUTION: Philippines, Marianas (Guam).

Guam is the only locality in which this species is known to occur outside of the Philippines. It has been known on Guam since at least 1900, when Alvin Seale collected it at Agana. Ten specimens, all from Guam, are in the survey material.

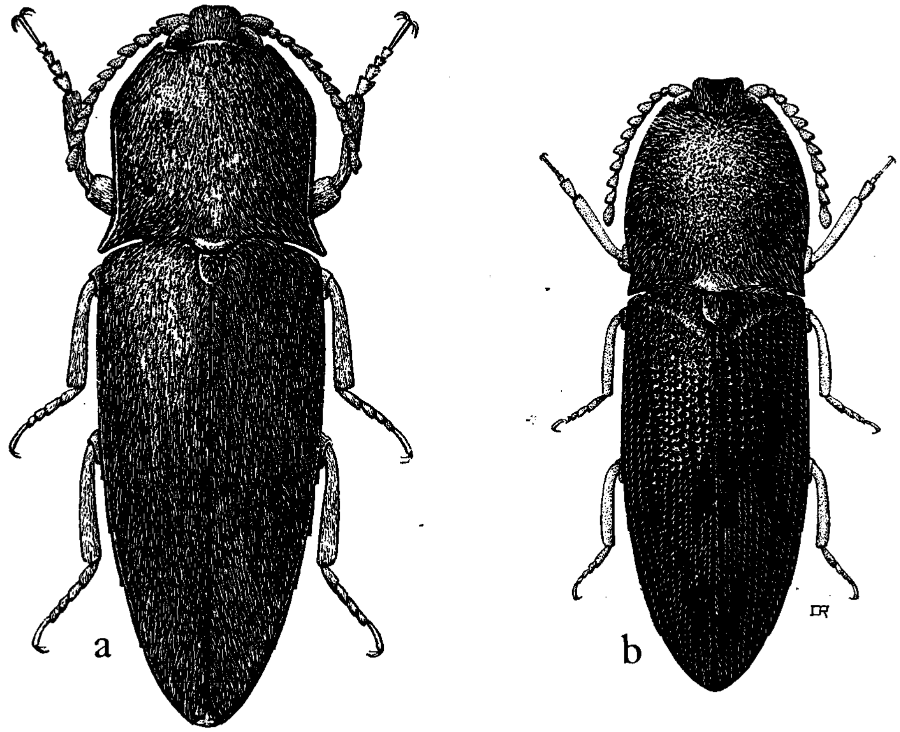


FIGURE 1.—**a**, *Lanelater bifoveatus*, Guam; **b**, *Lacon modestus*, Saipan.

Genus **Lacon** Laporte de Castelnau

Lacon Castelnau, 1836, Silberm. Rev. Ent. **4**: 11 (type: *Elater atomarius* Fabricius; Europe).

2. **Lacon modestus** (Boisduval). (Figure 1, *b*.)

Agrypnus modestus Boisduval, 1835, Voy. Astrolabe, Ent. (2) : 108 (type in British Museum).

Agrypnus pruinosus Fairmaire, 1849, Rev. Mag. Zool. II, **1**: 35 (*Adelocera*, p. 359).

Agrypnus squalidus Fairmaire, 1849, Rev. Mag. Zool. II, **1**: 35 (*Adelocera*, p. 359).

Agrypnus nigroplagiatus Blanchard, 1852, Voy. Pôle Sud. **4**: 85.

Adelocera modesta, Candèze, 1857, Monogr. Élat. **1**: 71.

Lacon modestus, Van Zwaluwenburg, 1942, B. P. Bishop Mus., Bull. **172**: 53.

DISTRIBUTION: Antilles, Guatemala, French Guiana, Senegal, Borneo, Philippines, Fiji, Polynesia, Marianas, Gilberts.

S. MARIANA IS. SAIPAN: Asgonna, two, Oct. 1941, Matusita; As Mahetog area, Nov. 1944, Dybas; Fananganan (Fanagam), May 1940, Yasumatsu and Yoshimura; Garapan, 1941, Matusita; Papaka (Papago) area, two, Jan. 1945, Dybas. ROTA: Songsong (Sonson-Sabana), Nov. 1937, Esaki; Songsong (Sonson), Aug. 1941, Matusita. GUAM: Pt. Oca, 16, May-June 1945, light trap, G. E. Bohart and Gressitt; Port Ajayan, June 1945, Dybas; Talofofo Bay, May 1948, Maehler.

GILBERT IS. TARAWA: Mar. 1951, Catala.

A male from the Gilbert Islands supplies a new island record for this widespread species. In 1936 Swezey and Usinger took specimens, several of them at light, at three localities on Guam. A series from the Marianas which includes a new island record from Rota is among the survey material.

Genus **Compsolacon** Reitter

Compsolacon Reitter, 1905, Bestimmungs Tabellen **56**: 6 (type: *Agrypnus crenicollis* Ménétries; Caucasus).

KEY TO MICRONESIAN SPECIES OF COMPSOLACON

Antennal segment 3 similar to 4 and of equal length, large insects, not less than 15 mm. long; slender (Japan; Bonins)........................**mäklini**

Antennal segment 3 similar to 2, shorter and narrower than 4; rather stout insects, not over 11 mm. long (Marianas, eastern Carolines)........................**cognatus**

3. Compsolacon cognatus Van Zwaluwenburg, n. sp. (figs. 2, *a*; 3, *b*.)

Compsolacon gracilis, Van Zwaluwenburg, 1948, Hawaiian Ent. Soc., Proc. **13** (2): 285 (tentative identification); 1952, Hawaiian Ent. Soc., Proc. **14** (3): 437 [atypical *gracilis* (Candèze) identification questioned].

Length, 8.5-10.25 mm.; width, 3.0-3.4 mm.

Prothorax slightly longer than greatest width (measuring to tips of fore and hind angles); sides crenulate, evenly curved between fore and hind angles. Pronotum moderately convex, with sometimes a vague, transverse elevation on either side behind disc; punctation coarse, uniform; basal slope gentle, median groove weak on disc, stronger behind; hind angles posteriorly convergent with a single fine carina which extends for about two-thirds the length of the pronotum. Propleura without impressions for reception of tarsi.

As in *C. gracilis* (Candèze), abdominal sternite 4 of female has a shiny median area (posterior in position and about one-third width of sternite) on which punctation is much sparser than on adjacent areas; in males this shiny area is lacking.

Holotype, male (US 62925), eastern Carolines, Truk, Wena (Moen) I., at light, May 20, 1947, D. B. Langford. (The aedeagus is mounted on a point attached to the specimen.) Allotype, female (BISHOP 2199), eastern Carolines, Truk, Wena (Moen), at light, Oct. 1952, J. W. Beardsley.

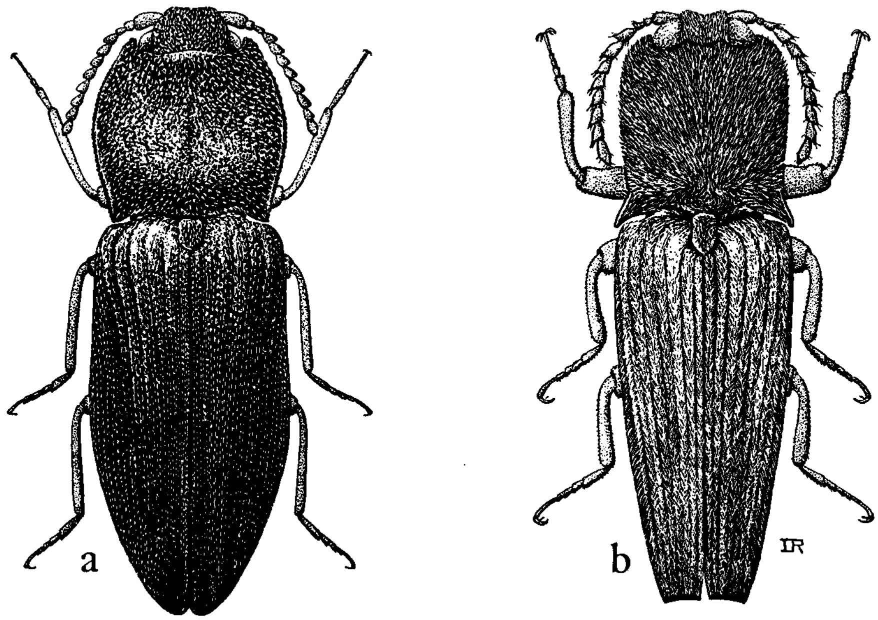


FIGURE 2.—**a**, *Compsolacon cognatus*, holotype, Truk; **b**, *Alaus depressicollis*, Koror. (The specimen from which *a* was drawn lacks the four apical segments of the left antenna and the terminal one of the right; the antennae have been reconstructed from a paratype male from Ponape.)

S. MARIANA IS. ROTA: Female, Songsong (Son Son), on corn tassels, June 1946, Oakley; seven males, same data.

TRUK. WENA (Moen): Seven, Nantaku (Civil Administration area), Feb.-Apr. 1949, Potts.

PONAPE. Colonia, Sept. 1930, Uchiyama, Jan. 8, 1938, Esaki.

KUSAIE. Lele (Lelo) I., Dec. 1937, Esaki.

DISTRIBUTION: Mariana Is., eastern Carolines (Truk, Ponape, Kusaie).

In color, punctation, and general appearance, this species closely resembles *C. gracilis* (Candèze) from New Guinea. However, in *C. gracilis* the outline of the sides of the prothorax is suddenly, almost angularly, narrowed at about the anterior one-third, whereas in *C. cognatus* the curve from fore to hind angles is uniform. In *C. cognatus* the hind angles of the prothorax converge backward, whereas in *C. gracilis* they are subparallel. The differences in the aedeagi of the two species are shown in figure 3, *a, b*.

From related species which in common with *C. cognatus* have the prothorax crenulate on the sides and a long carina along either margin, this species

can be separated thus: *C. lapideus* (Candèze) has the hind angles of the prothorax parallel and truncate at the apex, whereas in *C. cognatus* they converge and are acute; the Philippine *C. spurcus* (Candèze) has the hind angles divergent and truncate. I have not seen the Javan species, *C. serricollis* (Candèze); but according to its description and figure, the prothorax is clearly longer than wide, not subequal in those dimensions as in *C. cognatus*. Furthermore, *C. serricollis* is a larger insect (14 mm. long).

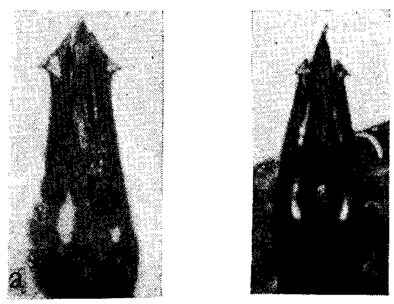


FIGURE 3.—**a**, *Compsolacon gracilis*, New Guinea; **b**, *C. cognatus*, holotype, Truk.

4. **Compsolacon mäklini** (Candèze).

Adelocera mäklini Candèze, 1865, Élat. Nouv. **1**: 6 (what is probably the type is in Zoological Museum, Helsingfors).—Miwa, 1934, Gov. Res. Inst. Formosa (Taiwan), Dept. Agric., Rept. **65**: 66.

DISTRIBUTION: Japan, Bonins.

BONIN IS. CHICHI JIMA (Peel I.): Hills east of Omura (Port Lloyd), June 1949, Mead; Fukisaki Yama, July 1949, Kondo; east slope of Mikasuki Yama, July 1949, Mead.

Miwa records the capture of this insect by S. Matsumura on Chichi Jima (Peel Island) in the Bonins as early as 1905. Three specimens in the survey collections from that island are blackish, instead of brown as described and as is true of a specimen from Japan.

Genus **Meristhus** Candèze

Meristhus Candèze, 1857, Monogr. Élat. **1**: 162 (type: *Meristhus scobinula* Candèze; Mexico).

5. **Meristhus scobinula** Candèze (fig. 4).

Meristhus scobinula Candèze, 1857, Monogr. Élat. **1**: 164, pl. 2, fig. 25 (type in British Museum); 1895, Élat. Nouv. **6**: 12 (designated as type of genus).

Meristhus setarius Chevrolat, 1867, Soc. Ent. France, Ann. IV, **7**: 596.

Meristhus texanus Horn, 1871, Am. Ent. Soc., Trans. **3**: 300, pl. 4, fig. 1.

DISTRIBUTION: United States (Georgia, Texas, Arizona), Mexico, Central America, Cuba, Colombia, China, Japan, Marianas.

S. MARIANA IS. SAIPAN: Near Garapan, under board on beach, Jan. 1945, Dybas.

M. scobinula is here recorded from Micronesia for the first time; a single specimen from Saipan is among the survey material.

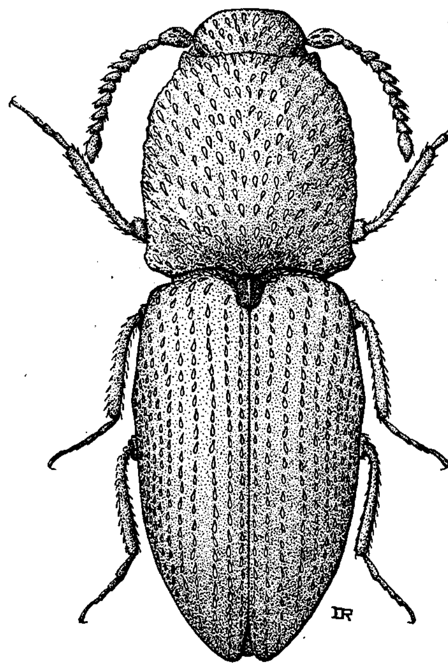


FIGURE 4.—*Meristhus scobinula,* Saipan.

HEMIRRHIPINAE

KEY TO MICRONESIAN GENERA OF HEMIRRHIPINAE

Prosternal sutures open anteriorly for reception of base of antennae........................**Alaus**
Prosternal sutures, at most, only feebly separated anteriorly..................................**Tetrigus**

Genus **Alaus** Eschscholtz

Alaus Eschscholtz, 1829, Thon's Ent. Archiv **2** (1): 32 (type: *Elater oculatus* Linneaus; North America).

KEY TO MICRONESIAN SPECIES OF ALAUS

1. Large insects (25-35 mm. long); pubescence tawny; antennal segments 2 and 3 together shorter than 4.. 2
   Not over 20 mm. long; pubescence whitish; antennal segments 3 and 4 subequal in length (Marianas, Palaus)..**guamensis**

DICREPIDIINAE

Genus **Propsephus** Hyslop

Propsephus Hyslop, 1921, for *Psephus* Candèze, 1859, preoccupied (type: *Psephus beniniensis,* Candèze; Benin).

Key to Micronesian Species of Propsephus

Pubescence yellowish; mucro strongly bent upward behind fore coxae; lateral margin of prothorax overhanging the propleuron to form a "gutter" along its outer border (Polynesia, Marshalls, Gilberts) .... **tongaensis**

Pubescence black; mucro gently upcurved behind fore coxae; propleuron without "gutter" (Bonins) .... **langfordi**

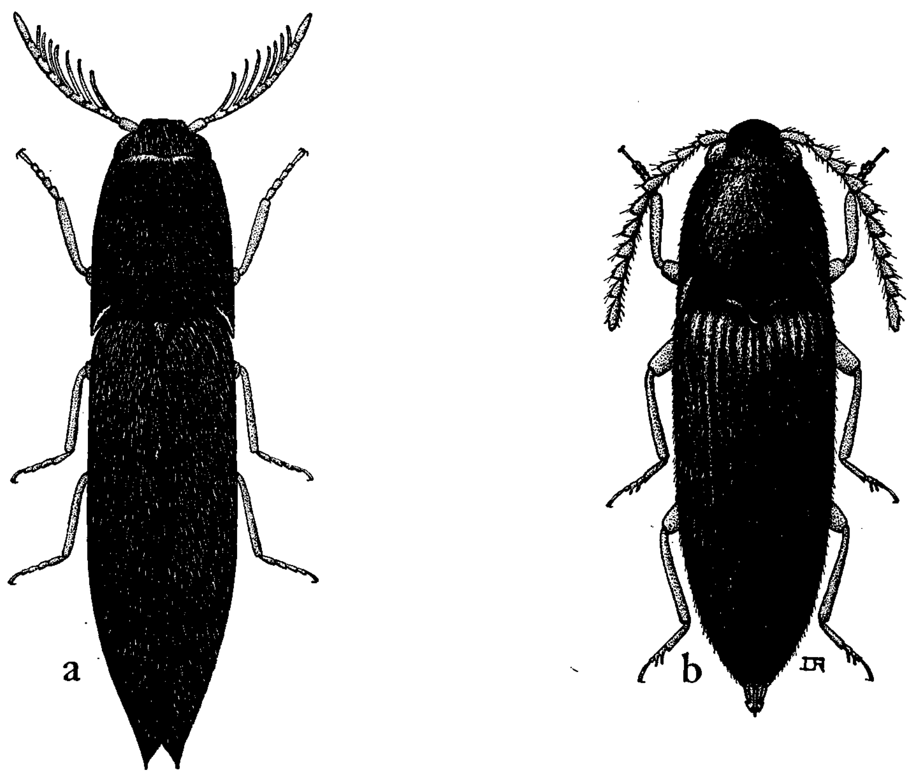


FIGURE 5.—**a,** *Tetrigus townesi,* Guam; **b,** *Prosephus langfordi,* allotype male, Chichi Jima.

12. Propsephus langfordi Van Zwaluwenburg, n. sp. (fig. 5, *b*).

Length, 7.5-11.5 mm.

Rather slender; shiny. Black, with hind angles of prothorax sometimes brownish; appendages reddish brown. Pubescence black, short.

Front of head convex, its anterior margin broadly rounded; punctation fine, uniform, moderately dense. Antennae subserrate beginning with segment 3; exceeding hind angles of prothorax by less than half length of apical segment (female), or by more than two segments (male); 3 as long as 4; 11 elongate oval.

Prothorax (hind angles included) as wide as long; sides parallel from base of hind angles to about middle and thence arcuately narrowed forward (female), or converging forward from base of hind angles (male). Pronotum strongly convex; basal slope shallowly grooved on middle, basal notches small but well marked; hind angles elongate, diverging slightly backward, strongly, bluntly unicarinate; punctation on disc as on head, denser toward sides.

Scutellum subtriangular, flat, rounded at apex; rather coarsely punctulate.

Elytra as wide across humeri as across hind angles of prothorax; sides narrowed from about middle (female) or before (male), to conjointly rounded apex. Striae deeply impressed; intervals convex toward base. Prosternum tumid. Mucro gently upcurved behind fore coxae. Sides of mesosternal cavity declivous, divergent forward. Hind coxal plates with definite, blunt tooth at widest point.

Holotype, female (US 62926), Bonin Is., Chichi Jima (Peel I.), June-July 1949, D. B. Langford. Allotype, male (BISHOP 2200), Chichi Jima, Tsurihama, June 23, 1949, A. R. Mead. Paratypes, four males.

BONIN IS. Chichi Jima: Omura, June-July 1949, Mead; three, Tsurihama, June 1949, Mead. Haha Jima (Coffin I.): Male, June-July 1949, Mead.

A specimen of undetermined sex from the National Institute of Agricultural Science, Tokyo, is labeled in Japanese, "Ogasawara Is., 6th day, 7th month, Showa 14 [1940], Daito, bowing insect."

DISTRIBUTION: Bonins (Chichi Jima, Haha Jima).

This species suggests *P. obesus* from the Solomons, but in that insect antennal segment 3 is definitely shorter than 4, whereas in *P. langfordi* the two are of equal length. The mucro is less sharply upturned behind the fore coxae in *P. langfordi* than in any other Pacific *Propsephus* known to me. This species is dedicated to the memory of the late Daniel B. Langford, who in the fields of malacology and entomology served science well for many years in the Pacific.

13. Propsephus tongaensis (Candèze).

Anchastus tongaënsis Candèze, 1878, Élat. Nouv. **2**:25 (type was in Zoological Museum, Hamburg).

Ischiodontus hawaiiensis Candèze, 1881, Élat. Nouv. **3**:42.

Propsephus tongaënsis, Van Zwaluwenburg, 1928, Insects of Samoa **4** (2): 114.

DISTRIBUTION: Polynesia (Phoenix Is., Samoa, Tonga), Marshalls, Gilberts.

MARSHALL IS. Ailinglapalap: Woja (Wotje) I., Oct. 1953, Beardsley.

GILBERT IS. Butaritari (Makin): June 1944, Enke.

The records from the Marshalls and Gilberts are new. Despite Candèze's synonymous name, this species does not occur in the Hawaiian Islands.

ATHOINAE

Genus **Harminius** Fairmaire

Harminius Fairmaire, 1852, Soc. Ent. France, Ann. **1852**: 80 (type: *Harminius castaneus* Fairmaire; Sicily).

14. Harminius sp.

DISTRIBUTION: Marcus I.

Sakagami is authority for the record from Marcus Island of an unidentified species of *Harminius*. He records it in a paper written in Japanese [1953, Shin Konchū **6** (5): 23-29] in which he describes his visit to that atoll. It is probable that this insect was introduced into Marcus from Japan. There are no representatives of the subfamily Athoinae among the survey collections from Micronesia.

PACHYDERINAE

Genus **Simodactylus** Candèze

Simodactylus Candèze, 1859, Monogr. Élat. **2**: 169 (type: *Elater cinnamomeus* Boisduval; Polynesia).

Simodactylus is the only genus of this subfamily in Micronesia; it is confined to the Pacific area and centers in the western and south Pacific. In this paper 19 species and one subspecies are recorded from Micronesia, distributed as follows (four occur in more than one geographical district): Marcus Island (1); Mariana Islands (4); western Carolines (5); eastern Carolines (9); Marshall Islands (3); and the Gilbert Islands (2).

The single subspecies and 13 of the species are restricted to high islands and are presumed to be endemic. Each of the others, also native, occur on an atoll as well as on high islands. Four species, probably immigrants, including one which is found also on the high island of Ponape and on Kapingamarangi Atoll, occur on the low islands of the Marshalls and Gilberts. For the most part, then, immigrant *Simodactylus* are found on the atolls, endemic species on the high islands.

Twelve of the 16 native *Simodactylus* are restricted to a single island or closely integrated island group, indicating the importance of isolation in the formation of species. The small numbers of species on any one island (Ponape with five has the most), as contrasted with the prolific insular speciation in some Hawaiian genera, suggests that species formation in Micronesia has been comparatively recent or that the fewer species reflect smaller land areas and restricted ecological opportunity.

The genus is poor in external characters useful in differentiating species. Therefore considerable use has been made in this paper of the characters afforded by the aedeagal structures. These exhibit great diversity between species, but negligible variation within a species. Aedeagal characters have been

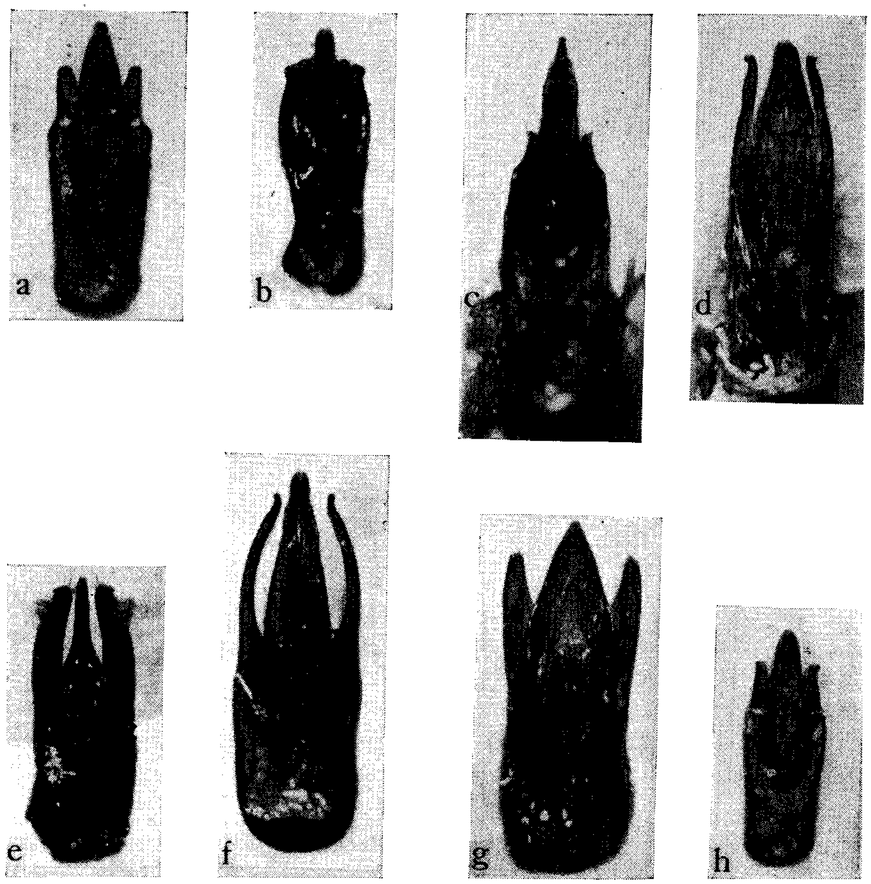


FIGURE 6.—**a**, *Simodactylus lineatus*, Kusaie; **b**, *S. tasmani*, Fiji; **c**, *S. trukensis*, Truk; **d**, *S. nitens*, holotype, Ponape; **e**, *S. marianarum*, Rota; **f**, *S. hesperius pullus*, holotype, Ponape; **g**, *S. palauensis*, Babelthuap; **h**, *S. exsul*, holotype, Saipan.

used sparingly in the accompanying key, but photographs of the aedeagi will be found helpful in separating otherwise closely similar species. Although the sclerotized parts of the aedeagi are consistent in shape, care must be exercised when comparing these structures to view them from the same angle. The illustrations on figures 6, 7, and 10 show the aedeagi in ventral aspect, as they lie within the male specimens. The figures are not uniformly enlarged, but are roughly comparable in size.

In the absence of type material, identifications of the Le Guillou, Candèze, and Fairmaire species have been made with some reluctance. I hope that, apart from such errors as may occur in my interpretation of those three species, the present treatment of the genus, with its comparisons of aedeagal structure, will be a sound guide to the identification of Micronesian *Simodactylus*.

On the basis of similarity in aedeagal structure, the Micronesian *Simodactylus* can be separated into four more or less closely related groupings:

exsul new species
impressus new species
pallidus Fleutiaux
tasmani Candèze
tastui (Le Guillou)

collinus new species
fasciolatus Fairmaire
gressitti new species
lineatus Van Zwaluwenburg
remotus new species

decumanus new species
hesperius Van Zwaluwenburg
hesperius pullus new subspecies
nitens new species

decoratus new species
marianarum Van Zwaluwenburg

S. cinnamomeus (Boisduval) has an aedeagus unlike any other and cannot be assigned to any of the above groups; the same is true of *S. palauensis*. Furthermore, the aedeagus of *S. trukensis* is unlike any other; although no male of *S. beardsleyi* is available to compare with *S. trukensis,* the two are obviously related.

The *decumanus* and *decoratus* groups superficially suggest some of the Philippines *Simodactylus,* but no comparisons of their aedeagi have been made. *S. fasciolatus* was described from New Britain, and its occurrence on Kapingamarangi is a reminder that that atoll is only some 500 kilometers from the northernmost island of the Bismarck Archipelago. *S. tasmani* and *S. tastui* were first known from Fiji and Samoa respectively.

Key to Micronesian Species of Simodactylus

1. Sides of mesosternal cavity prominent and horizontal behind; precipitous in front 2
   Sides of mesosternal cavity not prominent; either horizontal or declivous but not precipitous in front 3

2(1). Antennae of female reaching to about middle of metasternum (to abdominal segment 2 in male); outer angles of segments 2 to 10 angularly produced (Truk) .... **trukensis**
   Antennae shorter, in female reaching to about mesosternal cavity; outer angles of segments 3 to 10 not produced (Truk) .... **beardsleyi**

3(1). Pronotum strongly flattened, its basal slope precipitous 4
   Pronotum convex, its basal slope gentle or moderate 7

4(3). Pronotum tumid at top of basal slope (Ponape) .... **nitens**
   Pronotum not conspicuously tumid toward base 5

5(4). Mucro flat or weakly convex between fore coxae; hind angles of prothorax sharply bicarinate (Marianas) .... **marianarum**
   Mucro widely concave between fore coxae, sides prominent; hind angles of prothorax with inner carina strong, outer sometimes weak 6

6(5). Elytra reddish brown, dusky toward apex (Marianas, Truk, Kusaie) .... **hesperius**
   Elytra reddish brown, with lateral streak, sutural line, and apical one-fourth black (Ponape) .... **hesperius pullus**

7(3). Propleura with punctation generally uniform (rarely sparse on "gutter")...... 8
Propleura impunctate toward base and in "gutter"........ 9

8(7). Tarsal segments 3 and 4 feebly dilated; hind angles of prothorax stout; mucro excavate between fore coxae (Palaus)........ **gressitti**
Tarsal segments 3 and 4 strongly dilated; hind angles of prothorax slender; mucro convex between fore coxae (Marianas)........ **exsul**

9(7). Hind angles of prothorax with two sharply defined carinae........ 10
Hind angles with two carinae, but the outer one not so sharply defined as the inner 11

10(9). Antennae, even in female, slightly exceeding hind angles of prothorax (Yap) .... **impressus**
Antennae, even in male, fail to reach apex of hind angles of prothorax........ 12

11(9). Prosternum flattened before fore coxae; pronotum finely grooved medianly to well forward of middle; antennae, even in male, fail to reach apex of hind angle of prothorax; bicolorous: blackish, with humeri of elytra and at least fore angles of prothorax, yellowish brown (Ponape)........ **decoratus**
Prosternum convex before fore coxae; pronotum with shallow median groove on basal slope only; antennae, even in female, attaining apex of hind angles of prothorax; generally unicolorous: dark brown with base of elytra yellowish (Ponape)........ **decumanus**

12(10). Elytral striae obsolete on disc (Kusaie)........ **collinus**
Elytral striae well marked throughout their length........ 13

13(12). Lateral lobes of aedeagus strongly attenuate apically, the apex acute or blunt (fig. 6, *a*)........ 14
Lateral lobes of aedeagus not attenuate, the apex broad (fig. 6, *b*)........ 17

14(13). Pronotum with median black maculation on entire length, widening behind middle, and sometimes again before hind margin; median basal groove short, deep; scutellum usually black (New Britain, Samoa, eastern Carolines, Marshalls) .... **fasciolatus**
Pronotum with fine median longitudinal blackish line (*lineatus*), or immaculate; median basal groove wide, shallow; scutellum usually brown...... 15

15(14). Pronotum (hind angles excluded) slightly wider than long, sides rounded at middle; outer margin of lateral lobes of aedeagus abruptly incurved at about apical one-third to form a "shoulder" (Yap, Ulithi)........ **remotus**
Pronotum longer than wide; sides feebly rounded at most........ 16

16(15). Hind angles of prothorax plainly divergent from outline of sides; hind coxal plate bluntly produced at widest point; outer margin of lateral lobe of aedeagus evenly curved from base to apex (fig. 6, *g*) (Palaus)........ **palauensis**
Hind angles only slightly diverging from outline of sides; hind coxal plate widely curved at widest point; outer margin of lateral lobe of aedeagus abruptly narrowed at about middle to form a "shoulder" (eastern Carolines) .... **lineatus**

17(13). Outer apical angle of lateral lobe of aedeagus with definite spine or knob...... 18
Outer apical angle of lateral lobe rounded, not spined or knobbed (fig. 6, *b*) (Fiji, Marshalls)........ **tasmani**

18(17). Outer apical angle of lateral lobe of aedeagus acutely spined (fig. 7, *a*) (Polynesia, Marshalls)........ **cinnamomeus**
Outer apical angle of lateral lobe of aedeagus knobbed........ 19

19(18). Shiny; light to pale yellowish brown; hind angles of prothorax plainly divergent (Marcus, Marianas, western Carolines)........ **pallidus**
Dull; luteous, with or without dusky lateral stripe on pronotum; hind angles of prothorax subparallel (Samoa, Ellice, Gilberts)........ **tastui**

15. Simodactylus trukensis Van Zwaluwenburg (fig. 6, *c*).

Simodactylus trukensis Van Zwaluwenburg, 1952, Hawaiian Ent. Soc., Proc. **14** (3): 438 (holotype female and allotype are in California Academy of Sciences).

DISTRIBUTION: Eastern Carolines (Truk).

TRUK. WENA (Moen): Type locality. TONOAS (Dublon): 1,000 ft., May 1946, Fosberg. One labeled Truk, May 17, 1945, Kono.

A specimen in the survey collections from Tonoas Island, Truk, adds a new island record from that atoll. The hind coxal plates are definitely, though bluntly, toothed at their widest point, a character not mentioned in the original description. The lateral lobe of the aedeagus is sharply narrowed toward the apex, acute at the tip (fig. 6, *c*).

16. Simodactylus beardsleyi Van Zwaluwenburg, n. sp.

Length, 11.0 mm.

Moderately shiny; dark brown with head and prothorax blackish, appendages lighter brown. Pubescence tawny, fine, recumbent.

Frontal margin of head prominent, angulate on middle; lower part of head convex, disc weakly excavate. Punctation subumbilicate, uniform. Antennae weakly serrate beginning with segment 3; exceeding tips of hind angles of prothorax by about length of apical segment; 3 as long and wide as 4; 3 to 10 subequal in length, but progressively narrower; 11 narrowed apically.

Prothorax (hind angles excluded) slightly longer than wide; sides subparallel to about middle, thence gently narrowed to anterior margin. Pronotum moderately convex, its basal slope abrupt, without trace of median groove; hind angles slender, divergent, bicarinate, the outer carina the stronger. Punctation of pronotum dense, moderately fine, confluent toward sides, finer on base.

Scutellum convex, subtriangular; finely punctulate.

Elytra as wide across humeri as across hind angles of prothorax; sides parallel to about middle, thence conjointly narrowed to apex; tip of each wing cover faintly emarginate, the sutural angle finely mucronate. Striae deeply impressed; intervals convex.

Punctation of propleura and prosternum coarse. Mucro nearly horizontal, vaguely carinate between fore coxae, subapical tooth short. Sides of mesosternal cavity on posterior half horizontal and prominently raised, anteriorly divergent; precipitous anteriorly. Hind coxal plates rounded at widest point. Tarsal lobes 2 to 4 weakly developed.

Holotype, probably female (US 62927), eastern Carolines, Truk Atoll, Wena (Moen) I., Oct. 1952, J. W. Beardsley.

DISTRIBUTION: Eastern Carolines (Truk).

The mucral cavity is similar to those of *S. prominens* and *S. trukensis*. The former, from the Admiralty Islands, has the tips of the elytra strongly spined, and the frontal margin of the head medianly truncate instead of angulate as in *S. beardsleyi*. *S. trukensis,* besides being larger and having longer antennae than *S. beardsleyi,* has the mucro more strongly upcurved behind the fore coxae and longer and coarser pubescence than *S. beardsleyi.*

17. Simodactylus nitens Van Zwaluwenburg, n. sp. (fig. 6, *d*).

Length, 15.5-18.0 mm.

Shiny; light chestnut brown with head black (anteriorly brown), pronotum with disc (and sometimes hind angles, or entire pronotum except fore angles) black; scutellum blackish; elytra generally, chestnut brown, dusky at base, and with black lateral markings which widen near the apex to include the suture and apex; antennae and legs reddish to yellow. Underside generally blackish, with propleura and metasternum light brown. Pubescence yellowish, extremely fine and short.

Frontal margin of head broadly rounded; disc flat with vague impression either side of middle. Punctation fine, dense, uniform. Antennae serrate; short, failing, in male, to reach tip of hind angle of prothorax by about length of apical segment (shorter in female); segment 3 as long as 4 but narrower; 4 to 10 broadly triangular, decreasing in length.

Prothorax (hind angles excluded) wider than long; sides converging forward from tips of hind angles to about middle (male), or from base of angles to middle (female), thence narrowed to anterior margin. Pronotum strongly convex, tumid behind middle, disc strongly flattened; basal slope abrupt, with no trace of median groove; hind angles broad, slightly divergent, bicarinate, the inner carina strongly, the outer more finely, marked, the space between them concave. Punctation fine, uniform, dense.

Scutellum elongate triangular, convex; finely punctulate.

Elytra at base as wide as distance across hind angles of prothorax; sides parallel to about middle (female) or less (male), thence conjointly narrowed to apex, which is entire. Punctures of striae weak; intervals flat, finely punctate.

Beneath, propleura nearly flat, concave anteriorly only. Prosternum flattened before fore coxae. Mucro excavate and margined on sides between fore coxae, nearly horizontal, only faintly upcurved behind coxae; subapical tooth fine, short. Sides of mesosternal cavity gently declivous. Hind coxal plates angulate but not toothed at widest point. Tarsal segments 2 to 4 moderately dilated.

Holotype, male (US 62928), eastern Carolines, Ponape I., Colonia, at light, near sea level, Mar. 14, 1948, H. S. Dybas. (The aedeagus is mounted on a point attached to the specimen.) Allotype, female (BISHOP 2512), Ponape I., Mt. Temwetemwensekir, light trap, 180 m., Jan. 19, 1953, J. L. Gressitt. Ten paratypes.

PONAPE. Six males, Colonia, near sea level, Mar. 1948, Dybas; four females, Colonia, same data, Dybas.

DISTRIBUTION: Eastern Carolines (Ponape).

An additional 43 specimens are before me, all from Ponape, including the earliest record of the species' capture (Colonia, June 10, 1927, Uchiyama) and 38 taken by Dybas (same data as for the paratypes).

The strongly flattened disc and tumid crest of the basal slope of the pronotum readily separate this species from its congeners. The general color pattern is similar to that of *S. hesperius pullus* from the same island. The blackish markings on the dorsum of *S. nitens* vary considerably, but even those with the maximum of black on the pronotum always have the fore angles lighter in color (usually brownish); some have more or less black along the elytral suture. The aedeagi of *S. nitens* and of *S. hesperius pullus* (fig. 6, *d, f*) are similar, but in *S. nitens* the lateral lobes are swollen before the apex, instead of being uniformly slender.

18. Simodactylus marianarum Van Zwaluwenburg, emendation (fig. 6, *e*).

Simodactylus marianorum Van Zwaluwenburg, 1948, Hawaiian Ent. Soc., Proc. **13** (2) : 270, fig. 3 (holotype female and allotype are in U. S. National Museum) ; 1949, Hawaiian Ent. Soc., Proc. **13** (3) : 327.

Simodactylus sp., Van Zwaluwenburg, 1942, B. P. Bishop Mus., Bull. **172** : 53 (the species now proves to have been *S. marianarum*).

DISTRIBUTION: Marianas (Tinian, Rota, Guam; all recorded previously).

No new island records occur among the 20-odd specimens of this species in the survey collections. The fragment taken by Usinger in 1936 on Mount Alifan, Guam, and identified to genus, is *S. marianarum*.

This insect has been confused with *S. hesperius* from the Marianas and the eastern Carolines. Among other differences, however, in *S. hesperius* the pronotum is more strongly flattened than in *S. marianarum* and the mucro is deeply and widely excavate between the fore coxae, whereas in *S. marianarum* it is only moderately channeled. The aedeagi of the two are very different (figs. 6, *e*; 7, *b*).

19. Simodactylus hesperius hesperius Van Zwaluwenburg (fig. 7, *b*).

Simodactylus hesperius Van Zwaluwenburg, 1940, B. P. Bishop Mus., Occ. Papers **16** (5) : 114, fig. 5, *c* (holotype female and allotype are in Bishop Museum).

DISTRIBUTION: Marianas (Saipan), eastern Carolines (Truk, Kusaie).

S. MARIANA IS. SAIPAN: Jan. 1936, Uchiyama, June 1936, Yoshino; Asgonna, Oct. 1941, Matusita, Nov. 1944, Hagen; As Mahetog area, at light, Nov. 1944, and six, at light, Apr.-July 1948, Dybas, June, Oct. 1945, at light, Ducoff, Jan. 1-3, 1948, Maehler, three 1.2 miles east of Tanapag, Dec. 1944, Apr. 1945, Dybas; Mt. Tagpochau (Tapotchau), Feb. 1949, Maehler; Saipan, no locality, Oct. 1948, Doutt, southern part of Saipan, Dec. 1944, Dybas.

TRUK. WENA (Moen): Previously recorded. TONOAS (Dublon) I.: Type locality. TON (Tol) I.: Mt. Unibot, light traps, alt. 200 m., Dec. 1952 and alt. 32 m., Jan. 1953, Gressitt.

KUSAIE. Total of 99 specimens, most of them taken by Clarke at altitudes up to 500 meters, many at light, one "in trash at base of *Freycinetia* leaf."

There is good reason to doubt the validity of the Palau locality label attached to the holotype. Among the 200-odd specimens of *S. hesperius* in the survey collections, there is none from the Palaus, despite intensive collecting there by Dybas, Beardsley, and Gressitt. It is probable that *S. hesperius* does not occur in the Palaus, and that the holotype specimen was mislabeled and

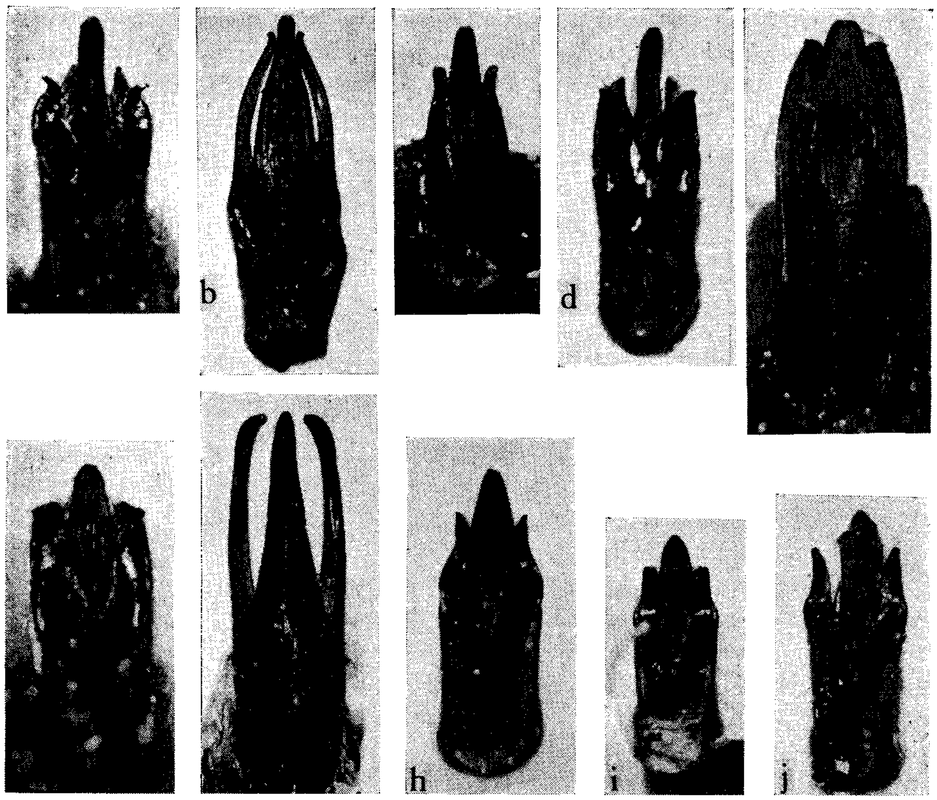


FIGURE 7.—**a,** *Simodactylus cinnamomeus,* Hawaii; **b,** *S. hesperius,* Truk; **c,** *S. gressitti,* holotype, Babelthuap; **d,** *S. impressus,* holotype, Yap; **e,** *S. decoratus,* holotype, Ponape; **f,** *S. pallidus,* Tinian; **g,** *S. decumanus,* holotype, Ponape; **h,** *S. collinus,* holotype, Kusaie; **i,** *S. remotus,* holotype, Yap; **j,** *S. fasciolatus,* Jaluit.

actually came from Truk in the eastern Carolines. The original description neglected to list a paratype from Kusaie.

Most specimens of *S. hesperius* show no trace of a median groove on the basal slope of the pronotum, but a few (including one paratype and both sexes from Truk), and 34 of the 98 specimens from Kusaie, have a well-developed median groove on the basal slope. Such a character might usually be expected to have some taxonomic value, but in this instance I believe it to be without significance. In two specimens the groove is asymmetrically placed, well to one side of the median line.

Specimens from Saipan, Truk, and Kusaie exhibit slight variations in aedeagal structure; but these, too, appear to have no significance. However, the males from Ponape all have the aedeagus markedly different from that in males from the other islands. Because of this difference in the aedeagus I have separated the Ponape series as a new subspecies of *S. hesperius.*

20. Simodactylus hesperius pullus Van Zwaluwenburg, n. subsp. (fig. 6, *f*).

Simodactylus hesperius, Van Zwaluwenburg, 1948, Hawaiian Ent. Soc., Proc. **13** (2) : 269 (the reference to *S. hesperius* from Ponape applies to this subspecies).

The subspecies *S. h. pullus* differs from typical *S. hesperius* as follows:

S. hesperius pullus	S. hesperius
1. Elytra with black lateral streak, black suture and apex (sometimes as much as apical one-third of elytra is black)	Elytra uniformly brownish, without black markings
2. Apex of hind angles of prothorax black	Hind angles of prothorax brownish
3. Size: females 17.6 mm., males 17.0 mm. long (average of 51)	Smaller: females 15.5 mm.; males 14.8 mm. long (average of 54)
4. Lateral lobes of aedeagus strongly arched (fig. 6, *f*)	Lateral lobes of aedeagus moderately arched (fig. 7, *b*)

Holotype, male (US 62929), eastern Carolines, Ponape I., Mt. Dolen Kiepw (Tolenkiup), 2,300 ft., June-Sept. 1950, P. A. Adams. (The aedeagus is mounted on a point attached to the specimen.) Allotype, female (BISHOP 2513), same data as for holotype.

Additional specimens in the survey material number 73 in all from Ponape and were taken from sea level to 2,300 feet between 1948 and 1953 by Dybas, Adams, and Gressitt.

DISTRIBUTION: Eastern Carolines (Ponape).

As in typical *S. hesperius,* a few specimens have a median groove on the basal slope of the pronotum, but they differ in no other way from those lacking the groove.

21. Simodactylus gressitti Van Zwaluwenburg, n. sp. (fig. 7, *c*).

Length, 10.0-11.0 mm.

Moderately shiny; head and prothorax dark brown to piceous, with front of head and anterior margin of prothorax sometimes reddish; elytra dark cinnamon brown with base sometimes flavous; appendages reddish brown. Pubescence fulvous, short, coarse.

Frontal margin of head broadly rounded; disc feebly convex; punctation fairly coarse, dense. Antennae weakly serrate; short, in male failing to reach tips of hind angles of prothorax by about length of the three apical segments; segment 3 definitely shorter than 4; 2 and 3 together longer than 4; 4 to 10 progressively shorter and more slender; 11 rounded at apex.

Prothorax (hind angles excluded) about as long as wide in both sexes; sides straight and gently convergent (male) from base of hind angles to anterior one-third, or (female) subparallel on basal half, thence gently arcuate. Pronotum evenly convex; basal slope gradual, grooved on middle; hind angles moderately stout, diverging slightly from outline of sides, acutely bicarinate, the carinae of equal strength; punctation on disc as on head, confluent toward sides, sparser, finer on base.

Scutellum subtriangular, convex; finely punctulate.

Elytra at humeri as wide as across hind angles of prothorax; sides parallel to about middle (female) or less (male), thence conjointly narrowed to tips, which are entire, with a suggestion of brief truncation. Striae consisting of rows of well-impressed punctures; intervals convex.

Beneath, propleura evenly punctate on nearly entire surface. Prosternum strongly convex before coxae. Mucro nearly horizontal, grooved between fore coxae; subapical tooth

very fine. Sides of mesosternal cavity evenly declivous at about a 45 degree angle. Hind coxal plates rounded at widest point. Tarsal segment 4 weakly dilated.

Holotype, male (US 62930), western Carolines, Palau Islands, Babelthuap I., Ngiwal, Oct. 26-29, 1951, J. L. Gressitt. (The aedeagus is mounted on a point attached to the specimen.) Allotype, female (BISHOP 2514), western Carolines, Palau Islands, Babelthuap I., Ngiwal, Aug. 2-3, 1951, J. L. Gressitt. Nine paratypes.

PALAU. NGAIANGL (Kayangel): Ngaiangl (Ngajangel) I., light trap, Dec. 1952, Gressitt. BABELTHUAP: Two, Ngiwal, light trap, 1 m., Dec. 1952, Gressitt. KOROR: Six at light, Sept. 1952-Jan. 1953 and female, at light, Dec. 1952, Beardsley.

DISTRIBUTION: Western Carolines, Palaus (Ngaiangl, Babelthuap, Koror).

Dr. Gressitt, for whom the species is named, reared the allotype from a larva associated with *Oryctes* grubs in a decaying log, but states (1953, B. P. Bishop Mus., Bull. **212**:96): ". . . the larva is a scavenger."

The aedeagus is shown in figure 7, *c*. The dilation of tarsal segments 2 to 4, although definite, is feeble in *S. gressitti* in comparison with some other species of *Simodactylus*.

22. Simodactylus exsul Van Zwaluwenburg, n. sp. (fig. 6, *h*).

Length, 12.5-14.5 mm.

Moderately shiny; cinnamon brown with black discal patch on pronotum, and elytra sometimes flavous at base, or darker brown to almost black, with pronotal markings obscured. Appendages reddish brown. Pubescence tawny, very fine.

Frontal margin of head broadly rounded; disc convex to flat. Punctation moderately fine, dense, uniform. Antennae feebly serrate from segment 4, failing to reach tips of hind angles of prothorax by only a fraction of the length of terminal segment (male), or by length of one entire segment (female); 3 shorter and narrower than 4; 4 to 10 decreasing in length.

Prothorax (hind angles excluded) about as wide as long; sides subparallel from base to about middle (female) or less (male), thence narrowed to fore margin. Pronotum moderately convex; basal slope gentle, with short wide median channel; hind angles divergent, acutely bicarinate. Punctation of pronotum about as on head, but sparser except toward sides, and nearly as dense on basal slope as on disc.

Scutellum elongate triangular, flat or feebly convex; finely punctulate.

Elytra across humeri slightly wider than prothorax (not hind angles); sides narrowed backward from about middle (female) or before (male); tip of each elytron subtruncate. Striae well impressed; intervals convex, finely punctate.

Punctation on propleura generally uniform, sometimes sparser on concave "gutter." Mucro gently upcurved, convex between fore coxae. Sides of mesosternal cavity moderately, evenly declivous. Hind coxal plates not acutely produced at widest point. Dilation of tarsal segments 2 to 4 moderate.

Holotype, male (CM), Mariana Islands, Saipan I., 1.2 miles east of Tanapag, Apr. 25, 1945, H. S. Dybas. (The aedeagus is mounted on a point attached to the specimen.) Allotype, female (BISHOP 2515), Mariana Islands, Saipan I., As Mahetog area, May 24, 1945, H. S. Dybas. Paratypes, Mariana Islands,

Saipan I., As Mahetog area, three females, at light, Nov. 24, 1944, Apr. 29, and July 24, 1945, one probable male, Apr. 26, 1945, Dybas; one female, no locality, Nov. 22, 1944, Hagen.

DISTRIBUTION: Marianas (Saipan).

This species can be identified by antennal segment 3 being shorter than 4, and by having that part of the mucro lying between the fore coxae definitely convex, neither flattened nor concave, nor with prominent side margins. The aedeagus (fig. 6, *h*) is of the same type as those of *S. impressus, S. pallidus, S. tasmani,* and *S. tastui,* but is distinguished from them all by the greater slenderness of the lateral lobes on the apical one-third and by the truncate inner angle of the apex.

23. Simodactylus impressus Van Zwaluwenburg, n. sp. (fig. 7, *d*).

Length, 11.7-12.5 mm.

Shiny; head and thorax dark brown, with sides and hind angles of pronotum sometimes reddish; elytra reddish brown; appendages light brown. Pubescence tawny, inconspicuous.

Frontal margin of head broadly rounded; head depressed immediately behind front, disc convex. Punctation fine, uniform. Antennae weakly serrate; exceeding tips of hind angles of prothorax by about half the length of the apical segment (female), or by two apical segments (male); 3 slightly shorter and narrower than 4; 4 to 10 decreasing in length.

Prothorax (hind angles excluded) about as wide as long; sides subparallel on basal half. Pronotum rather strongly convex; basal slope moderate, with fine, deep median groove, and mediad of hind angles, either side of median groove, a short, well-marked longitudinal impression; these impressions give prominence to that part of the basal slope which lies between them and the median groove; hind angles slender, divergent, finely bicarinate. Punctation of pronotum fine, uniform, disappearing toward base.

Scutellum elongate triangular, anteriorly convex; finely punctulate.

Elytra about as wide across humeri as prothorax. Sides narrowed from about middle (female) or before (male); apex of each faintly emarginate. Striae well impressed; intervals convex. Mucro very slightly upcurved behind fore coxae, shallowly concave between them. Sides of mesosternal cavity gently declivous. Hind coxal plates rounded, not at all angulate on rear margin.

Holotype, male (US 62931), western Carolines, Yap group, Yap I., Mt. Matade, light trap, 96 m., Dec. 1, 1952, J. L. Gressitt. (The aedeagus is mounted on a point attached to the specimen.) Allotype, female (BISHOP 2516), Yap group, Yap I., Oct. 1952, N. L. H. Krauss. Paratype, male, Yap I., Kolonia, Mar. 8, 1949, Ross (this specimen is in poor condition and has been repaired).

DISTRIBUTION: Western Carolines (Yap).

The longitudinal impression on either side of the basal slope of the pronotum is more strongly marked than similar impressions on the pronotum of *S. collinus* from Kusaie; the aedeagi of the two (fig. 7, *d, h*) are quite dissimilar. From *S. pallidus* Fleutiaux, this species can be separated by the pronotal impressions and longer antennae, which, in *S. impressus,* extend beyond the tips of the hind angles of the prothorax in both sexes, whereas in *S. pallidus,* even in the male,

the antennae do not reach the tip of the angles. The aedeagus of *S. impressus* is more slender, and has the median lobe more elongate, than in *S. pallidus* (fig. 7, *f*).

24. Simodactylus decoratus Van Zwaluwenburg, n. sp. (figs. 7, *e*; 8, *a*).

Length, 16.5-18.0 mm.

Shiny; black, with appendages, anterior part of head, fore angles (and sometimes sides and hind angles) of prothorax, and elytra in part yellowish brown. The brown area on the elytra lies behind the humeri, and may extend backward for more than half the length of the wing covers; it is widest anteriorly where it extends from interval 3 to the lateral margin; posteriorly it is narrowed by a lateral black border, which begins before the middle and widens posteriorly. Beneath, uniformly blackish brown, with side margins of propleura and sometimes of abdominal sternites, yellowish brown. Pubescence tawny, extremely fine, recumbent.

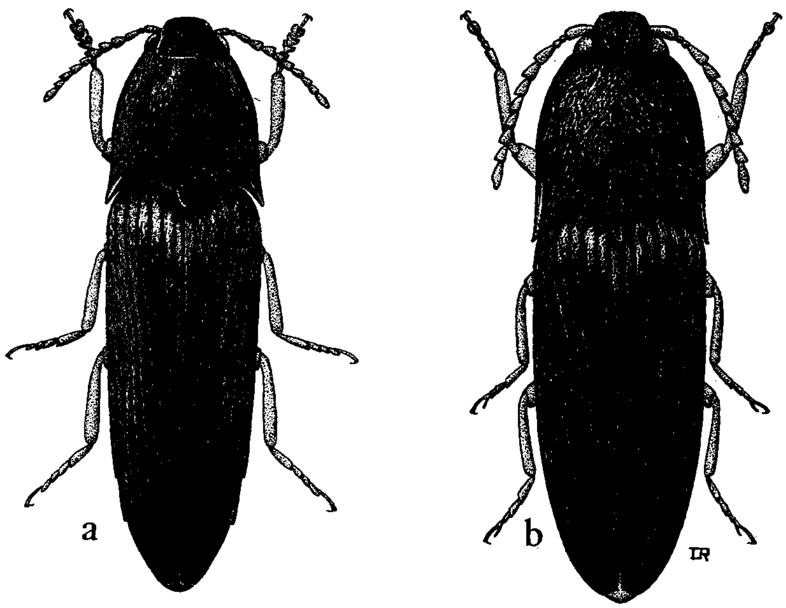


FIGURE 8.—**a**, *Simodactylus decoratus,* allotype female, Ponape; **b**, *Conoderus pallipes,* Ailinglapalap.

Frontal margin of head raised, widely arcuate, the area immediately behind it flat or concave; disc convex. Punctation fine, uniform. Antennae feebly serrate; not reaching tips of hind angles of prothorax, even in male; segment 3 as long as 4, but more slender; 4 to 10 progressively shorter and more slender.

Prothorax (not including hind angles) wider than long; straight, converging forward from base of hind angles (male), or gently arcuate (female). Pronotum moderately convex, flattened before middle of disc; disc finely impressed along midline from before middle to basal slope where the impressed line widens shallowly; hind angles rather stout, divergent, bicarinate, the inner carina sharply prominent, the outer weaker, close to the margin and extending almost halfway to the anterior margin, space between carinae wide, flat. Punctation of pronotum fine, uniform, even on base and sides.

Scutellum subtriangular, flat at apex; finely punctulate.

Elytra at humeri as wide as hind angles of prothorax; sides narrowed from about middle (female) or before (male) to the conjointly rounded apex; each wing cover shallowly and briefly emarginate at tip, a short spicule on inner angle. Striae finely impressed; intervals convex, closely punctulate. Mucro deeply concave between fore coxae, the sides raised to a plane more prominent than that of strongly flattened prosternum; gently upcurved behind; subapical tooth fine. Sides of mesosternal cavity gently, evenly declivous, margins flat. Hind coxal plates briefly toothed at widest point.

Holotype, male (US 62932), eastern Carolines, Ponape I., Colonia, at light, near sea level, Mar. 6, 1948, H. S. Dybas. (The aedeagus is mounted on a point attached to the specimen.) Allotype, female (BISHOP 2517), Ponape I., Colonia, near sea level, Mar. 20, 1948, Dybas. Paratypes, two males, Ponape I., Colonia, near sea level, at light, Mar. 20, 1948, Dybas; seven, undetermined sex, Ponape I., Colonia (four at light), near sea level, Mar. 5-20, 1948, Dybas.

DISTRIBUTION: Eastern Carolines (Ponape).

Tarsal segments 2 to 4 are strongly widened in *S. decoratus*; the basal slope of the pronotum is much less abrupt than in *S. nitens* and *S. hesperius*. In *S. decoratus* the aedeagus (fig. 7, *e*) has lateral lobes much the same as in *S. marianarum,* but whereas in the latter the median lobe is distally slender, in *S. decoratus* it is stout.

25. Simodactylus decumanus Van Zwaluwenburg, n. sp. (fig. 7, *g*).

Length: male 18.75 mm.; female 20.5 mm.

Elongate; moderately shiny; dark brown with head and pronotum blackish; antennae and legs reddish; in the holotype the base of the elytra is yellowish. Pubescence pulvous, short.

Head flat on disc, slightly excavate behind the broadly rounded frontal margin; punctation fine, uniform. Antennae subserrate; exceeding tips of hind angles of prothorax by about two segments (male) or just failing to reach tips (female); segment 3 subequal to 4, but narrower; 4 to 10 progressively shorter and narrower; 11 narrowed on apical one-third.

Prothorax (not including hind angles) wider than long; sides subparallel to about middle (female) or less (male), thence narrowed forward. Pronotum convex; basal slope moderately abrupt, with wide, shallow median channel; hind angles slightly divergent, strongly unicarinate, with a poorly defined outer carina which is very weak in the allotype. Punctation of pronotum moderately coarse, dense, finer and sparser on base.

Scutellum triangular, flat on apex, or concave with apex prominent; finely punctulate.

Elytra as wide at humeri as hind angles of prothorax; sides narrowed from about middle (female) or before (male); each elytron briefly emarginate at apex with a fine mucro at sutural angle. Striae with lightly impressed lines of punctures; intervals convex, flat forward of disc.

Mucro with side margins raised between fore coxae; slightly upcurved behind; subapical tooth short, fine. Sides of mesosternal cavity not prominent, nearly horizontal posteriorly, sloping gently in front. Hind coxal plates strongly toothed at widest point. Dilation of tarsal segments 2 to 4 well developed.

Holotype, male (US 62933), eastern Carolines, Ponape I., Nanipil (Nanpil), Nett District, Feb. 25, 1948, H. S. Dybas. (The aedeagus is mounted on a point attached to the specimen.) Allotype, female (BISHOP 2518), Ponape I., Nanipil (Nanpil), Nett District, Feb. 27, 1948, Dybas.

DISTRIBUTION: Eastern Carolines (Ponape).

The lateral lobes of the aedeagus (fig. 7, *g*) are long and slender, as in *S. hesperius*. In *S. decumanus* their tips are somewhat expanded and curve inward, whereas in *S. hesperius* they are more slender at the tips and directed outward.

26. Simodactylus collinus Van Zwaluwenburg, n. sp. (fig. 7, *h*).

Length, 14.0-16.0 mm.

Shiny; variable in color: (1) fuscous with fore and hind angles of pronotum and base of elytra reddish brown; or (2) uniformly chestnut or with disc of pronotum blackish and base of elytra flavous. Legs and antennae flavous to reddish brown. Pubescence tawny gray, fine, short.

Frontal margin of head broadly rounded, the area immediately behind flat or depressed; disc gently convex. Punctation moderately coarse, uniform. Antennae weakly serrate; reaching almost to apex of hind angles of prothorax; segement 3 slightly shorter and narrower than 4.

Prothorax (not including hind angles) longer than wide (male) or length and width subequal (female); sides subparallel on basal half, more arcuately narrowed on anterior half in female than in male. Pronotum moderately convex; basal slope moderate, strongly grooved on middle, with a prominence on either side between the median groove and a vague depression on either side, mediad of hind angles; hind angles slender, slightly divergent, strongly bicarinate. Punctation on pronotum somewhat finer and sparser than on head, nearly impunctate on basal slope.

Scutellum elongate triangular, convex, with apex usually flat; finely punctulate.

Elytra slightly wider across humeri than prothorax; sides narrowed backward from about middle (female) or before (male), more strongly narrowed on apical one-third; apex of each elytron briefly emarginate, the sutural angle sometimes minutely mucronate. Striae weakly impressed, often obsolescent on disc; intervals flat apically, convex toward base.

Mucro slightly upcurved behind coxae. Sides of mesosternal cavity not prominent, evenly declivous. Hind coxal plates somewhat bluntly produced at widest point. Segment 4 of tarsi moderately dilated.

Holotype, male (US 62934), eastern Carolines, Kusaie I., "Hill 541," 105 m., at light, Mar. 19, 1953, J. F. G. Clarke. (The aedeagus is mounted on a point attached to the specimen. The left antenna of the holotype is abnormal, being shorter than the right, though entire.) Allotype, female (BISHOP 2519), Kusaie I., "Hill 1010," 300 m., Feb. 4, 1953, Clarke. Nine paratypes, all collected by Clarke on Kusaie: Malem River, 90 m., at light, Apr. 27, 1953; Mwot, at light, Apr. 10, 1953; Mt. Matante, three, 580 m., Feb. 11-Mar. 26, 1953; "Hill 1010," 300 m., Feb. 4-13, 1953; "Hill 541," 105 m., at light, Mar. 19, 1953.

DISTRIBUTION: Eastern Carolines (Kusaie).

The allotype and five of the paratypes are chestnut brown. The weak striation of the elytra and the coloration suggest *S. hesperius,* but the aedeagi (fig. 7, *b, h*) are not at all similar; furthermore, the disc of the pronotum is distinctly flattened in *S. hesperius,* convex in *S. collinus*.

27. Simodactylus fasciolatus Fairmaire (fig. 7, *j*).

Simodactylus fasciolatus Fairmaire, 1863, Le Naturaliste **5** (30) : 238 (type was in Fleutiaux collection and is now in Paris Museum).

DISTRIBUTION: New Britain (type locality), eastern Carolines, Marshall Is.

CAROLINE ATOLLS. KAPINGAMARANGI: Touhou I., three, at or near light, July 1954, Niering; Taringa I., at light, July 1954, Niering.

PONAPE. Colonia, May 1927 and 1928, Uchiyama; Aug. 1946, Townes; at light, near sea level, Mar. 1948, Dybas, Jan. 1949, Ross; two, June-Sept. 1950, Agric. Exper. Sta., 1950, Adams; Paliker-Colonia, Jan. 1938, Esaki.

MARSHALL IS. UJELANG: Ujelang I., three, attracted to light, Feb. 1952, Fosberg. ENIWETOK: Runit I., Aug. 1945, R. Allen; Jobtan (Japtan) I., May 1946, Townes; Enjebi (Engebi) I., swept from *Scaevola* leaves, May 1946, Oakley. KWAJALEIN: Aug. 1948, Maehler. AILINGLAPALAP: Bikajela (Bigatyelang) I., light trap, Nov. 1948, Langford; two, Nov. 1948, Maehler. MAJURO: Oct. 1949, Langford; Airfield (? Ulika I.) on native grasses, Aug. 1946, Townes. JALUIT: Jabwar (Jabor) I., Nov. 1937, Esaki.

I identify as *S. fasciolatus* an insect which is well represented in the survey collections from the eastern Carolines and the Marshalls. In external characters, and after comparing the aedeagi, I am unable to find any difference between these Micronesian specimens and *S. fasciolatus* from New Britain, the type locality.

The aedeagi (figs. 6, *a*; 7, *j*) of *S. fasciolatus* and of *S. lineatus* are so similar that these two cannot be separated on aedeagal characters. Externally, however, *S. fasciolatus* has (1) the pronotum more convex, (2) the hind angles of the prothorax subparallel instead of divergent as in *S. lineatus*, and (3) a widened black median marking on the pronotum, a character which appears to be constant over a wide geographical range; in *S. lineatus* the pronotal maculation (rarely absent) consists of a fine longitudinal black line.

Since the above was written, I have been able (under National Science Foundation Grant 2898) to examine a male, with aedeagus mounted on a point, of *S. fasciolatus* in the British Museum. It adds the Ellice Islands to the known distribution of this species, collected on Niu Island, November 21, 1924, by P. A. Buxton and G. H. Hopkins. It is a specimen erroneously identified earlier as *S. tasmani* Candèze.

28. Simodactylus remotus Van Zwaluwenburg, n. sp. (fig. 7, *i*).

Length, 11.5-13.5 mm.

Moderately shiny; yellowish brown with frontal margin of head blackish. Pubescence yellowish, fine, inconspicuous.

Frontal margin of head broadly rounded, sometimes faintly truncate on middle; disc weakly convex; punctation uniform, dense. Antennae subserrate; short, failing (male) to reach tips of hind angles of prothorax by about length of apical segment; 3 slightly shorter than 4 and narrower; 4 to 10 decreasing in length.

Prothorax (not including hind angles) slightly wider than long; sides subparallel toward base and arcuate along middle (male) or arcuately rounded from base of hind angles (female). Pronotum moderately convex; basal slope gentle, median groove shallow; hind angles divergent, strongly bicarinate, the carinae of equal strength; punctation of pronotum fine, weak on base.

Scutellum convex, subtriangular, apex rounded; finely punctulate.

Elytra at humeri as wide as hind angles of prothorax; sides parallel to about middle (male) or beyond (female), thence conjointly narrowed to the subtruncate apex. Striae rather deeply impressed; intervals convex. Mucro weakly upcurved behind fore coxae. Sides of mesosternal cavity gently declivous. Hind coxal plates rounded at widest point. Tarsal segment 4 strongly dilated.

Holotype, male (US 62935), western Carolines, Yap group, Yap I., Colonia, July-Aug. 1950, R. J. Goss. (The aedeagus is mounted on a point attached to the specimen.) Allotype, female (BISHOP 2520), Yap group, Yap I., July-Aug. 1950, Goss.

CAROLINE ATOLLS. ULITHI: Fassarai I., male, July 1946, Townes, July 1946, Oakley.

YAP. YAP I.: Four, July-Aug. 1950, Goss.

DISTRIBUTION: Western Carolines (Yap, Ulithi).

The median groove on the basal slope of the pronotum ranges from very shallow to rather deeply incised. The aedeagus of *S. remotus* (fig. 7, *i*) is similar to those of *S. fasciolatus* Fairmaire and *S. lineatus*; however, the tips of the lateral lobes are blunter in *S. remotus,* and the narrowed part of the lobes, distad of the "shoulder," is relatively shorter than in the other two species. Externally, *S. remotus* can be distinguished from *S. lineatus* by its relatively wider prothorax. *S. remotus* can be separated from *S. pallidus* Fleutiaux by the shape of the lateral lobes of the aedeagus which are narrowed apically, whereas in *S. pallidus* they are not narrowed and have the apex wide with a knob on the outer angle.

29. **Simodactylus palauensis** Van Zwaluwenburg (fig. 6, *g*).

Simodactylus palauensis Van Zwaluwenburg, 1940, B. P. Bishop Mus., Occ. Papers **16** (5) : 118 (holotype female is in Bishop Museum).

DISTRIBUTION: Western Carolines (Palaus, Babelthuap, Koror, Angaur).

PALAU IS. BABELTHUAP: Ngerehelong, Sept. 1951, Gressitt, at light, Sept. 1952, Beardsley; east Ngatpang, male, light trap, 65 m., Dec. 1952, Gressitt (the aedeagus of this individual is illustrated, fig. 6, *g*); Ngaremeskang, light trap, 20 m., Dec. 1952, Gressitt. KOROR: July 20, 1946, Oakley; four males, Mar. 1948, Maehler; two males (one under bark), one female, at light, Apr.-May 1949, Langford. ANGAUR: Male, Jan. 1953, Beardsley.

This insect was described from the Palaus without specific island locality. Perusal by Amy Suehiro of the records in Bishop Museum of the Bishop Museum Caroline Islands Expedition (Ono), which collected the specimen,

reveals that the unique female of *S. palauensis* came from Babelthuap. Specimens among the survey material add two islands to the previously known distribution.

30. Simodactylus lineatus Van Zwaluwenburg (fig. 6, *a*).

Simodactylus lineatus Van Zwaluwenburg, 1948, Hawaiian Ent. Soc., Proc. **13** (2): 269, fig. 2 (holotype male and allotype are in U. S. National Museum).

DISTRIBUTION: Eastern Carolines (Nukuoro, type locality; Kusaie).

KUSAIE. Mutunlik, several, at light, Jan.-Apr. 1953, Clarke; "Hill 541," 105 m., at light, Mar. 1953, Clarke; Mwot, two, at light, Apr. 1953, Clarke.

This insect was described from Nukuoro Atoll in the eastern Carolines, where adults were found feeding on *Crinum* blossoms. Specimens among the survey material extend its known range to Kusaie.

The aedeagus of *S. lineatus* appears identical with that of the insect I consider to be *S. fasciolatus* Fairmaire. The two can be separated on external characters as follows: (1) the pronotum is less strongly convex on its anterior half in *S. lineatus* than in *S. fasciolatus*; (2) the hind angles of the prothorax plainly diverge backward in *S. lineatus,* whereas in *S. fasciolatus* they are subparallel, diverging little if at all; (3) markings on the pronotum of *S. lineatus* consist at most of a fine, median black line, which may be lacking (in *S. fasciolatus* the median black marking is widened on the disc and strongly narrowed behind).

31. Simodactylus tasmani Candèze (fig. 6, *b*).

Simodactylus tasmani Candèze, 1892, Élat. Nouv. **5**: 24 (type is in Brussels Museum).—Van Zwaluwenburg, 1928, Insects of Samoa **4** (2): 120 (erroneous citation from Ellice Islands).

DISTRIBUTION: Fiji (type locality), Marshalls.

MARSHALL IS. BIKINI: Apr. 1946, Morrison; Namu I., Aug. 1947, Morrison. KWAJALEIN: Lojjaiong (Loi) I., five on *Messerschmidia argentea,* Feb.-Mar. 1945, Wallace; Kwajalein I., Apr. 1948, Maehler. NAMU: Majkon (Kaginen) I., Oct. 1953, Beardsley. AILINGLAPALAP: Bikajela (Bigatyelang) I., 16 in light trap, Nov. 1948, Langford.

The 1928 identification of this species from the Ellice Islands I now believe should refer to *Simodactylus fasciolatus* Fairmaire.

In both external and aedeagal characters this species closely resembles *S. tastui.* However, in *S. tasmani* the aedeagus (fig. 6, *b*) is much more slender than in *S. tastui* (fig. 10, *a*); and in *S. tasmani* the hind angles of the prothorax are more widely divergent than in *S. tastui.*

S. tasmani differs from *S. fasciolatus* as follows: (1) generally duller, the black discal area on the pronotum less strongly marked and sometimes lack-

ing; (2) scutellum always brownish, never black as in *S. fasciolatus*; (3) the median groove on the basal slope of the pronotum is usually shorter and weaker in *S. tasmani.*

32. Simodactylus cinnamomeus (Boisduval). (Fig. 7, *a.*)

Elater cinnamomeus Boisduval, 1835, Voy. Astrolabe, Ent. (2): 106 (type is in British Museum).

Monocrepidius chazali Le Guillou, 1844, Rev. Zool. **7**: 220.

Monocrepidius sericans Fairmaire, 1849, Rev. Mag. Zool. II, **1**: 356.

Simodactylus cinnamomeus, Candèze, 1859, Monogr. Élat. **2**: 170, re-described, pl. 3, fig. 18.—Schnee, 1904, Zool. Jahrb., Abt. Syst. **20** (4): 391.—Van Zwaluwenburg, 1942, B. P. Bishop Mus., Bull. **172**: 53.

DISTRIBUTION: Marshalls (Jaluit), Polynesia, Bismarck Archipelago, and possibly Australia.

There are no Australian records for this species other than Boisduval's original Nouvelle Hollande. If his citation is correct, suspicion must attach to the commonly accepted distribution of *S. cinnamomeus* throughout Polynesia because of the possibility that Boisduval's species has not been correctly recognized.

Masters (1889, Linn. Soc. New South Wales, Proc. II, **3**: 321) records the species from Duke of York Island. This name has had various applications, including Atafu Island in the Tokelaus and Moorea Island in the Societies. Masters, however, definitely refers his *S. cinnamomeus* to the Duke of York Island, which lies between New Britain and New Ireland in the Bismarcks.

No *S. cinnamomeus* was recognized among the Micronesian survey material, but Schnee records it from Jaluit in the Marshalls (identified by Kolbe). All Marianas material labeled as *S. cinnamomeus* which I have examined proves to be *S. pallidus* Fleutiaux; hence my 1942 reference to this insect as occurring on Guam should apply to the latter species. The characters given in the key are taken from Hawaiian *S. cinnamomeus,* and the aedeagus (fig. 7, *a*) is figured from a Hawaiian individual.

33. Simodactylus pallidus Fleutiaux (fig. 7, *f*).

Simodactylus pallidus Fleutiaux, 1934, Soc. Ent. Belgique, Ann. and Bull. **74**: 366 (type is in Paris Museum).—Van Zwaluwenburg, 1940, B. P. Bishop Mus., Occ. Papers **16** (5): 118 (erroneus record from Truk).

DISTRIBUTION: Marcus I., Marianas, western Carolines (Palaus, Ifaluk), eastern Carolines (Truk).

MARCUS I. May 1952, Sakagami.

N. MARIANA IS. Agrihan: Two, July 1945, Borror and Holder, three, Aug. 1945, Borror. Pagan: Songsong, Apr. 1940, Yasumatsu and Yoshimura.

S. MARIANA IS. SAIPAN: Two, 1.2 miles east of Tanapag, Nov. 1944, Dybas, Jan. 1945, Hagen; Mt. Tagpochau, 1 mile north-northeast of summit, light trap, Jan. 1945, Dybas; Papago area, Jan. 1945, Dybas; Halaihai-As Teo area, Feb. 1945, Dybas; Sadog Talofofo, Feb. 1945, Dybas; As Mahetog area, 21, many at light, Nov. 1944-Oct. 1945, Dybas, three at light, Sept.-Oct. 1945, Ducoff. TINIAN: Marpo Valley, Oct. 1945, Dybas and at light, Nov. 1952, Beardsley. AGIGUAN: West end, May 1952, Kondo and Peterson. ROTA: Southeast part, Oct. 1945, W. L. Necker; two, Rota town, June 1946, Townes. GUAM: (1394 "*S. cinnamomeus*"), no date, Fullaway, Jan. 1945, R. M. Bohart, Jan.-Apr. 1945, Baker; Pt. Oca, Mar. 1945, R. M. Bohart, two, June 1945, W. L. Necker, July 1945, G. E. Bohart and Gressitt.

PALAU. No data, 1936, Yoshino. NGAIANGL (Kayangel): Light trap, Dec. 1952, Gressitt. BABELTHUAP: Previously recorded. KOROR: Previously recorded. NGERGOI (Garakayo): Sept. 1945, Baker. PELELIU: At light, Aug. 1945, northeast coast, Jan. 1948, Dybas. ANGAUR: Feb. 1948, Dybas. IFALUK: Ifaluk I., 11, Aug.-Sept. 1953, Bates.

TRUK. Feb. 1945, Kono.

Described from the "Iles Mariannes," this insect was later recorded from the Palaus. New records given above include seven specific islands in the Marianas, four new island localities in the Palaus, and Ifaluk and Marcus Islands. The 1940 record from Truk is now believed based on an erroneous locality label, and should be ignored.

S. pallidus varies in color from pale yellow, as described, to reddish brown, often with darker mottling on the pronotal disc. The aedeagus of a Tinian specimen is shown (fig. 7, *f*); it is very similar to that of *S. tastui* from Samoa and the Gilberts. The two are extremely close, but *S. pallidus* is larger and more shiny, with the prothorax relatively longer than in *S. tastui.* The generally paler color, and the absence of black marking on the pronotum separate *S. pallidus* from *S. fasciolatus*; its aedeagus is stouter than that of *S. fasciolatus.*

S. pallidus can be separated from *S. impressus* by its shorter antennae, which even in the male, do not reach the apex of the hind angles of the prothorax, whereas in *S. impressus* the antennae exceed the apex of the hind angles in both sexes. The aedeagi of these two species, again, are similar, but that of *S. pallidus* is generally stouter, and the median lobe shorter and more robust, than in *S. impressus.*

34. Simodactylus tastui (Le Guillou). (Figure 10, *a.*)

Dicrepidius tastui Le Guillou, 1844, Rev. Zool. **7**: 221 (type is believed to be in Paris Museum).—Fairmaire, 1849, Rev. Mag. Zool. II, **1**: 19; reprint of original description.

Simodactylus tastui, Candèze, 1859, Monogr. Élat. **2**: 152.

Simodactylus tasmani, Van Zwaluwenburg, 1928, Insects of Samoa **4** (2): 120; error for *fasciolatus.*

DISTRIBUTION: Samoa (type locality), Solomons, Ellice Is., Gilberts.

GILBERT IS. ONOTOA: Tanyah (Buiarton) I., on *Scaevola,* July 1951, at light and Aug. 1951, Moul.

After comparison with specimens from the Ellice Islands which I believe to be *S. tastui,* I identify three specimens from the Gilberts as this species. Two of them have a dusky streak on the sides of the pronotum. A male of *S. tastui* from the Solomons is present in a collection belonging to the British Museum (Isabel I., Haivo, July 6, 1934, R. A. Lever).

The aedeagus (fig. 10, *a*) is extremely like that of *S. pallidus.* However, *S. tastui* is smaller and less shiny and has the prothorax relatively shorter. The aedeagus of *S. tastui* is more robust than that of *S. tasmani,* with the outer apical angle of the lateral lobes knobbed instead of rounded. The hind angles of the prothorax are less strongly divergent in *S. tastui* than in *S. tasmani.*

CONODERINAE

Conoderus Eschscholtz, 1829, Thon's Ent. Archiv **2** (1): 31, (type: *Conoderus fuscofasciatus* Eschscholtz; Brazil).

KEY TO MICRONESIAN SPECIES OF CONODERUS

Hind angles of prothorax bicarinate; apex of elytra widely emarginate; brownish insects with transverse reddish band on elytra (New Guinea, Nauru, Ocean) .... **umbraculatus**

Hind angles of prothorax unicarinate; apex of elytra narrowly emarginate; uniformly fuscous except for flavous hind angles of prothorax (Polynesia, Marianas, Carolines, Wake, Marshalls, Gilberts) .... **pallipes**

35. Conoderus pallipes Eschscholtz (fig. 8, *b*).

Conoderus pallipes Eschscholtz, 1829, Thon's Ent. Archiv **2** (1): 31 (location of type is not known to me).

Monocrepidius rufangulus Fairmaire, 1849, Rev. Mag. Zool. II, **1**: 35, 355.

Monocrepidius pallipes, Candèze, 1859, Monogr. Élat. **2**: 238; redescribed. —Blair, 1927, Ann. Mag. Nat. Hist. IX, **20**: 171.

DISTRIBUTION: Polynesia, Marianas, eastern Carolines, Wake, Marshalls, Gilberts.

N. MARIANA IS. PAGAN: Nov. 1949, Kondo.

S. MARIANA IS. SAIPAN: Near Afenia (Afetne) Pt., June 27, 1946, Townes; Tanapag, at light, Jan. 1949 and numerous other specimens, Jan. 1949, Maehler; 10, Rota town, June 1949, Kondo; two, no data; nine, June-Aug. 1951, R. M. Bohart. ROTA: June 1951, R. M. Bohart, June 1952, Kondo. GUAM: Nine, northwest airfield, Aug. 1952, Krauss; seven, northeast Anderson Air Force base, Aug. 1952, Krauss; four, Ritidian Pt., Oct. 1952, Krauss.

KUSAIE. Malem, Dec. 1937, Esaki; Mutunlik (Matanluk), light trap, Jan. 1953, Gressitt; three, 22 m., at light, Feb., Apr. 1953, Clarke.

WAKE. June 1947, J. P. Martin and Nov. 1953, Joyce.

MARSHALL IS. ENIWETOK: May 1946, Oakley and Townes; Enjebi (Engebi) I., at light, Dec. 1950, Oshiro. UTIRIK: At light, Dec. 1952, Fosberg. JEMO: Ten, around light, Dec. 1952, Fosberg. WOTHO: Two, Eneobnak I., west end sand spit, in shade only, around *Pemphis acidula* clump, Mar. 1953, Fosberg. UJELANG: Ujelang I., attracted to light, Feb. 1953, Fosberg. KWAJALEIN: Five, Bweje I., on *Messerschmidia argentea,* June 1945, Wallace; three, Kwajalein I., on *Messerschmidia,* Apr. 1949, Maehler, Dec. 1952, Clarke, Mar. 1953, Clagg; two, Ebeye I., Aug. 1953, Fosberg; Lib I., Oct. 1953, Beardsley. AILINGLAPALAP: Three, near Airok (Airek) I., Aug. 1946, Oakley; two, Bikajela (Bigatyelang) I., Nov. 1946; Ailinglapalap I., Oct. 1953, Beardsley. MAJURO: Rongrong (Ronguron) I., Apr. 1948, Maehler; two, June 1950, La Rivers; Ulike (Uliga) I., Sept., Nov. 1953, Beardsley. ARNO: Two, Bikireji I., July 1950; nine, Ine I., at light. June-Aug. 1950, La Rivers and Usinger. MILI: Three, Namu I., Oct. 1953, Beardsley. EBON: Two, Ebon I., Sept. 1953, Beardsley.

GILBERT IS. ABEMAMA (Apemama): May 1944, Enke. ONOTOA: Four, Tanyah (Buiarton) I., at light, Aug. 1951, Moul. TARAWA: Five, Mar.-Aug. 1951, Catala.

This very common Polynesian species is one of the most abundant insects among the survey material from the Marianas and the Marshalls.

36. Conoderus umbraculatus (Candèze).

Monocrepidius umbraculatus Candèze, 1865, Élat. Nouv. **1**: 25 (type is in British Museum).—Rainbow, 1903, Australian Mus., Rec. **5** (1): 6.

DISTRIBUTION: New Guinea (type locality), Ocean I., Nauru I.

Rainbow records the species from both Nauru and Ocean Islands west of the Gilberts. There are no specimens of *C. umbraculatus* among the survey material from Micronesia.

AMPEDINAE

KEY TO MICRONESIAN GENERA OF AMPEDINAE

1. Prosternal sutures open anteriorly .... **Ampedus**
   Prosternal sutures closed for their entire length 2
2. Antennae stout, usually failing to reach base of hind angles of prothorax .... **Melanoxanthus**
   Antennae slender, longer, usually reaching base of hind angles or beyond .... **Megapenthes**

Separation of *Megapenthes* and *Melanoxanthus* is sometimes difficult, with borderline cases in which generic position is doubtful.

Genus **Ampedus** Dejean

Ampedus Dejean, 1833, Cat. Coléopt. 2 (1) : 92 (type: *Elater sanguineus* Fabricius; Europe).

37. Ampedus bifoveolatus (Miwa).

Elater bifoveolatus Miwa, 1927, Ins. Matsumurana 2: 17, pl. 1, fig. 10 (type in National Taiwan University, Formosa).

DISTRIBUTION: Bonins (Chichi Jima).

This species was described from a unique male collected on Chichi Jima in the Bonins by Matsumura, Aug. 20, 1905. There are no specimens of it in the survey collections. I am indebted to Dr. Fung Ying Cheng of the National Taiwan University for sending me notes and pencil sketches of the type.

Genus **Megapenthes** Kiesenwetter

Megapenthes Kiesenwetter, 1858, Naturgesch. Ins. Deutsch. **4**: 353 (type: *Elater lugens* Redtenbacher; Europe).

KEY TO MICRONESIAN SPECIES OF MEGAPENTHES

1. Head without definite longitudinal carina; at most, a vague median ridge........ 2
   Head with one or two longitudinal carinae........ 3

2(1). Generally blackish; no longitudinal carina on head; hind angles of prothorax weakly bicarinate (Japan, Bonins)........**near japonicus**
   Light brown insects with black markings on pronotum and elytra; a short trace of median carina sometimes on upper part of head; hind angles of prothorax unicarinate (New Guinea, Philippines, Marianas, Carolines, Wake)........**brunniventris**

3(1). Head with two longitudinal carinae (Palaus)........**carinifrons**
   Head with one longitudinal carina........ 4

4(3). Punctation on pronotum coarse; mucro deeply concave between fore coxae (Palaus)........**subinconditus**
   Pronotal punctation fine; mucro not concave between coxae (Marianas, Carolines)........**disjunctus**

38. Megapenthes near **japonicus** Fleutiaux.

Megapenthes japonicus Fleutiaux, 1902, Mus. Nat. Hist. Natur. Paris, Bull. **8**: 18 (type is in Paris Museum).

DISTRIBUTION: Japan, Bonins.

BONIN IS. No further data, Kuwana.

A specimen taken in the Bonins by the late Dr. S. I. Kuwana agrees fairly well with Fleutiaux's description of *japonicus*. Antennal segment 3 is as long as 4 and of similar shape; the elytra are reddish black, and the hind angles of the prothorax are weakly bicarinate. The Bonin specimen has been repaired with balsam.

39. Megapenthes brunniventris Candèze.

Megapenthes brunniventris Candèze, 1892, Mus. Civ. Stor. Nat. Genova, Ann. II, **12**: 804 (type is in Civic Museum, Genoa).

Megapenthes bakeri Fleutiaux, 1934, Soc. Ent. Belgique, Bull. and Ann. **74**: 368; new synonym.

Melanoxanthus usingeri Van Zwaluwenburg, 1942, B. P. Bishop Mus., Bull. **172**: 33; new synonym.

DISTRIBUTION: New Guinea, Bismarck Archipelago, Solomons, Philippines, Marianas (Saipan, Tinian, Guam), western Carolines (Palaus, Ulithi, Ifaluk, Lamotrek), Wake, eastern Carolines (Truk, Etal, Lukunor).

S. MARIANA IS. SAIPAN: Garapan, Sadog-Tasi, May 1940, Yasumatsu and Yoshimura; Banaderu-Tanapag (Tanapak), May 1940, Yasumatsu and Yoshimura; Achugay area, under box on beach, Jan. 1945, Dybas; southern part, Jan. 1945, Dybas. TINIAN: Mar. 1945, Hagen. GUAM: Four, Pt. Oca, at light, June 1945, Gressitt and G. E. Bohart; Machanao, Sept. 1949, Kondo and Mead.

PALAU. BABELTHUAP I.: Ngiwal-Ngarard, Feb. 1938, Esaki; Ngiwal, Nov. 1951, Gressitt, July 1946, Townes; 11, Ulimang, at light, Dec. 1947, Dybas. KOROR I.: Feb. 1948, Dybas, Nov. 1951, Gressitt. PELELIU I.: Akarokuru-Ashiasu-Garudoroko, Aug. 1939, Esaki, Aug. 1945, Dybas, and two, on *Oryctes*-infested coconut stump, Sept. 1951, Gressitt; four, Amiangal, light trap, Dec. 1952, Gressitt. ANGAUR: Eleven, Feb. 1948, Dybas, two, Dec. 1951, Gressitt. ULITHI: Asor I., Oct. 1952, Krauss; Fassarai I., Oct. 1952, Krauss. IFALUK: Two, Ifaluk I., Aug. 1953, Bates; Flalap (Falarik) I., at light, Sept. 1953, Bates. LAMOTREK (Lamotrik): Lamotrek I., Feb. 1953, Beardsley.

WAKE. Nov. 1953, Joyce; three, hot humid night, Feb. 1955, A. Gramolini.

TRUK. TON (Pata) I. Sabote-Epin, Apr. 1940, Yasumatsu and Yoshimura.

CAROLINE ATOLLS. ETAL: Etal I., Nov. 1952, Beardsley. LUKUNOR: Oneop I., at light, Mar. 1951, Langford.

Comparison of typical *M. brunniventris* from New Guinea with the unique female of *Melanoxanthus usingeri* from Guam and with a Mindanao specimen identified by the late Edmond Fleutiaux as *Megapenthes bakeri* convinces me that the three are a single variable species. Identical aedeagal structure of males from Luzon, the Palaus, and New Ireland supports this conclusion. The species exhibits a wide color variation. Individuals vary from one extreme in which they are almost entirely brown and the black pattern is completely lacking, to the other, in which individuals are completely black, except on the elytra, where streaks on the disc and sides and a basal area are flavous.

40. Megapenthes carinifrons Van Zwaluwenburg, n. sp.

Length, 3.8-4.75 mm.

Slender; cylindrical. Uniformly light brown with black markings as follows: (1) median vitta entire length of pronotum; (2) a broad vitta on either side of pronotum from anterior one-fourth at apex of hind angles; laterad this extends to the outer marginal carina, and posteriorly is restricted to the area between the marginal carina and the carina of the hind angle; (3) scutellum black; (4) narrow sutural band on elytra (weak anteriorly) which fails to reach the apex; widest on posterior half; (5) a diagonal line backward from elytral stria 5 to stria 3, its anterior end as far from base of elytron as its own length; (6) metasternal epimera almost completely black (light brown in one paratype). Pubescence yellowish brown, short, inconspicuous.

Frontal margin of head acuminate on middle; fronto-clypeal region medianly carinate. Head with two fine carinae, one mediad of each eye, converging from top of head near eyes to the disc where they most closely approach each other, then diverging forward to anterior margin; area between carinae on lower part of head weakly elevated longitudinally. Punctation moderately fine, dense, uniform. Antennae elongate, slender; exceeding hind angles of prothorax by more than two segments (male); segment 3 about 1.5 times length of 2; 2 and 3 together clearly shorter than 4; 4 to 10 subcylindrical, not carinate on outer face; 11 slightly longer than 10.

Prothorax longer than wide, even if the hind angles are omitted from measurement; sides nearly parallel from tips of hind angles, converging slightly on anterior half. Pronotum strongly convex on sides, disc flat; basal slope widely, shallowly concave on middle. Hind angles acute, sharply unicarinate. Punctation on pronotum shallow, denser toward sides than on disc.

Scutellum subtriangular, convex; finely punctulate.

Elytra at humeri as wide as hind angles of prothorax; sides convergent from base to anterior two-thirds, thence more strongly narrowed to the conjointly rounded apex. Striae with close-set, well-impressed punctures; intervals flat. Mucro gently upcurved behind fore coxae. Sides of mesosternal cavity evenly inclined at about a 45 degree angle. Propleura weakly concave anteriorly.

Holotype, male (US 42936), western Carolines, Palau Is., Ulebsehel (Aurapushekaru) I., beating vegetation, Jan. 13, 1948, H. S. Dybas. Paratype males, Palau Is. Babelthuap, Ulimang, beating vegetation, Dec. 24, 1947, Dybas; Koror, July 11, 1953, J. W. Beardsley; Ngeremeyaos (Ngiramous), Nov. 16, 1947, Dybas.

DISTRIBUTION: Western Carolines (Palaus).

The presence of two longitudinal carinae on the head of *M. carinifrons* suggests relationship between this species and *Megapenthes porticulatus* (*porticulata* amended) from Fiji with the Samoan *M. arcifrons*. However, in *M. carinifrons* the longitudinal carinae are not connected on the upper part of the head by transverse carinae as in the other two; in addition, the acutely prominent fronto-clypeal region of *M. carinifrons* is quite unlike the frontal structure of either of the others. The lateral lobes of the aedeagus in *M. carinifrons* are entire and not spinose toward the apex.

41. Megapenthes disjunctus Van Zwaluwenburg, n. sp.

Length, 8.75-9.0 mm.

Robust; shiny. Fuscous, with hind angles, and sometimes sides, of prothorax, and base of elytra brown; legs reddish. Pubescence tawny, fine, short.

Front convex; frontal margin sharply rounded on middle; head with a median carina; densely punctate. Antennae short, failing to reach tips of hind angles by about 3 segments (female); segment 3 about 1.5 times length of 2, and two-thirds length of 4; 4 to 10 triangular, finely longitudinally carinate on outer face.

Prothorax slightly wider than long (not including hind angles); sides parallel on basal half, thence gently rounded to anterior margin. Pronotum moderately convex; punctation fine, dense, coarser toward sides; a median impressed line, faint on disc, sharply incised on upper part of basal slope; hind angles stout, subparallel, sharply bicarinate, the outer carina sometimes extending forward to about middle.

Scutellum subtriangular with anterior margin notched, convex; coarsely punctulate.

Elytra at humeri slightly narrower than prothorax; sides parallel to about middle (female) or before (male), thence conjointly narrowed to apex, which is entire. Striae with shallow punctures which persist even toward the apex; intervals flat on posterior half. Mucro slightly upcurved behind fore coxae, its margins strongly raised between the coxae; tip of mucro acute, without subapical notch. Sides of mesosternal cavity prominent at base, declivous in front. Segments 2 and 3 villous on all tarsi.

Holotype, female (US 62937), western Carolines, Ifaluk Atoll, Ifaluk I., Aug. 12, 1953 Marston Bates. Allotype, male (BISHOP 2521), Ifaluk Atoll, Ifaluk I., Aug. 1953, Bates. (The aedeagus is mounted on a point attached to the specimen. The antennae of the allotype are incomplete.) Paratype, female, eastern Carolines, Kusaie I., Mutunlik, at light, Feb. 18, 1953, Clarke; probable female, Mariana Is., Rota I., south Rota, Oct. 25, 1945, no collector stated. (This specimen has the sides and base of the pronotum light brown.)

DISTRIBUTION: Western Carolines (Ifaluk), eastern Carolines (Kusaie), Mariana Is. (Rota).

This insect is closely related to *M. subinconditus,* but is less robust, and has the pronotal punctation much finer; furthermore, the mucro is not deeply grooved between the fore coxae as is the case of *M. subinconditus.* The relatively wider prothorax and shorter antennae separate *M. disjunctus* from the Philippine *M. inconditus* Candèze.

42. Megapenthes subinconditus Van Zwaluwenburg, n. sp. (fig. 9, *a*).

Length, 10.0-10.25 mm.

Robust; moderately shiny; pubescence yellowish, short. Head black with anterior part brown; pronotum yellowish brown with a wide black maculation covering most of the dorsum but does not reach the sides; side margins of this black area are subparallel anteriorly, but behind converge rapidly so that the black pattern pinches down to a narrow stripe as it ends behind. Scutellum dark brown. Elytra yellowish brown on sides, most of the rest of their surface covered by a longitudinal black area which is subtruncate in front, and fails to reach the base of the wing covers. Appendages reddish brown; body beneath black save for yellowish brown lateral areas of prosternal epipleura.

Head medianly carinate, front convex, frontal margin acutely rounded on middle and curved downward. Punctation coarse, punctures separated by distance equal to their own diameters. Antennae weakly serrate beginning with segment 4; short, not reaching tips of hind angles of prothorax by about 3 segments (female); 3 to 10 medianly carinate on outer face; 3 about two-thirds length of 4, but narrower; 2 and 3 together subequal to 4; 4 to 10 progressively widening; 11 rounded at apex.

Prothorax longer than wide when measured to tips of hind angles (when angles are omitted from measurement, the length about equal to width); sides subparallel

on basal half. Pronotum moderately convex; punctation coarse, deep, widely subocellate on sides; basal slope widely grooved with deeply incised median line; hind angles subparallel, acutely bicarinate.

Scutellum triangular, elongate, flat.

Elytra at humeri as wide as hind angles of prothorax; sides parallel to about middle, then narrowed to the rounded apex. Striae lightly impressed, more weakly toward apex; intervals flat. Mucro nearly horizontal, deeply grooved between fore coxae. Sides of mesosternal cavity gently declivous.

Holotype, female (US 62938), western Carolines, Palau Is., Koror I., July 3, 1953, J. W. Beardsley. Paratypes, females, Palau (Pelew) Is., 1931, Yoshino; Babelthuap I., east Ngatpang, 65 m., light trap, Dec. 9, 1952, Gressitt; Koror I., Ngarmid, Aug. 23-27, 1949, Mead; Peleliu I., east coast, Jan. 27, 1948, Dybas.

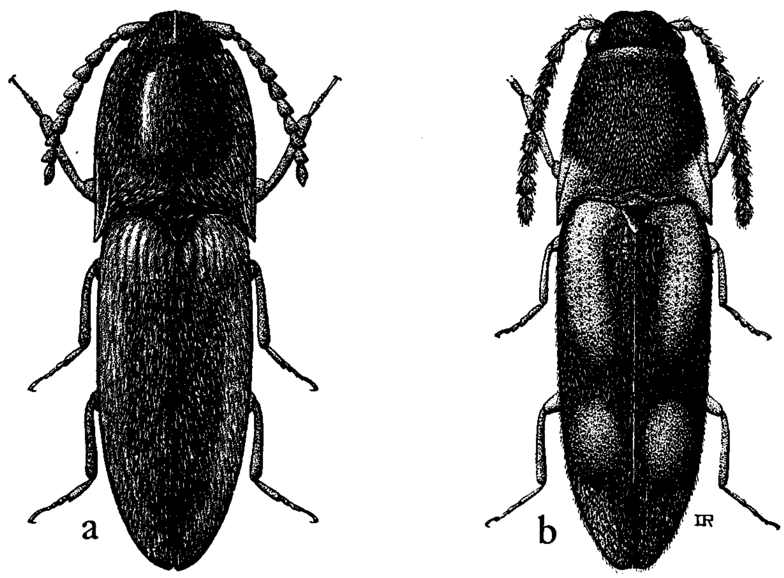


FIGURE 9.—**a,** *Megapenthes subinconditus,* holotype female, Koror; **b,** *Melanoxanthus cracens,* holotype male, Babelthuap.

DISTRIBUTION: Western Carolines (Palau).

This species is stouter in form than *M. inconditus* Candèze from the Philippines, but less stout than *M. curtus* Candèze from southeast Asia. In *M. subinconditus* antennal segment 3 is plainly twice the length of 2, whereas in *M. curtus* the two are subequal; in *M. inconditus,* 3 is even longer in comparison with 2, but still shorter than 4. The weak elytral striae and flat intervals further distinguish *M. subinconditus* from *M. inconditus,* in which the striae are strongly impressed and the intervals convex. The Luzon *M. frontalis* Fleutiaux differs from both *M. subinconditus* and *M. disjunctus* by its longer antennae, which exceed the tips of the hind angles of the prothorax.

Genus **Melanoxanthus** Eschscholtz

Melanoxanthus Eschscholtz, 1836, Silberm. Rev. Ent. **4**: Table Elaterides (type: *Elater melanocephalus* Fabricius; tropicopolitan).

Pacificola Van Zwaluwenburg, 1932, B. P. Bishop Mus., Bull. **98**: 131; new synonym.

Melanoxanthus is a genus of small beetles, centered for the most part in southeast Asia and the islands of the southwest Pacific. It contains some 250 described species, many of them variable in coloration and pattern. Color differences between sexes, such as occur among Australian *Melanoxanthus*, have not been observed among the Micronesian species. With the exception of *M. melanoxanthus* and *M. comptus*, the 19 species and one subspecies occurring in Micronesia appear to be endemic to that area; 17 are confined to a single island or island group. Their distribution is as follows: Bonin Islands, none; Marcus Island, none; Mariana Islands, six; western Carolines, 10; eastern Carolines, eight; Marshall Islands, two; Gilbert Islands, none.

Three species occur on the atolls and 18, on the high islands; one, *M. comptus*, is common to both. The Micronesian species show closer affinities with the Philippine than with the more poorly known New Guinea *Melanoxanthus* fauna.

The genus *Pacificola*, with 15 species in the Marquesas, Samoa, and Fiji, was proposed in 1932 for *Melanoxanthus*-like beetles with erect pubescence on tarsal segments 3, 4, and 5 and with tarsal segment 5 shorter than in *Melanoxanthus*. A wider knowledge of these insects convinces me that neither character is valid. Therefore I place *Pacificola* in synonymy under *Melanoxanthus*.

Key to Micronesian Species of Melanoxanthus

1. Anterior part of head seemingly or actually concave, the frontal margin prominent along its middle 2
   Anterior part of head convex or flat; frontal margin not prominent 10

2(1). Elytra patterned with yellow and black 3
   Elytra brownish or yellowish, sometimes a dusky patch on disc; without yellow and black pattern 8

3(2). Disc of pronotum black or blackish, divided entirely or in part by median line of lighter color 4
   Dusky area on pronotum not divided medianly 5

4(3). Predominantly light-colored insects; pronotum with two elongate black marks which diverge anteriorly (Palaus) .... **divergens**
   Predominantly black; black area on pronotum divided anteriorly by a light-colored line which does not extend through to the base (Palaus) .... **festivus**

5(3). Front of head strongly concave just behind anterior margin 6
   Front of head only moderately concave, at most 7

6(5). Moderately slender insects; not less than 3.5 mm. long (Marianas) .... **guamensis**
   Very slender insects; less than 3 mm. long (Palaus) .... **cracens**

7(5). Antennae elongate, exceeding tips of hind angles of prothorax by 3 segments in male; segments 2 and 3 together much shorter than 4 (Ponape) .... **varians**
Antennae not exceeding hind angles, even in male; segments 2 and 3 together subequal to 4 (Marianas, Palaus, Ponape) .... **dissitus**
8(2). Punctation of pronotum ocellate; widely ocellate on propleura; elytra brown, with apex blackish (Kusaie) .... **argus**
Punctation not ocellate on pronotum or propleura; elytra luteous with disc sometimes black, or fuscous with base flavous 9
9(8). Generally luteous; anterior part of pronotum blackish (Truk) .... **luteus**
Pronotum black with anterior margin and hind angles lighter; elytra brown with black sutural vitta of varying width (Palaus) .... **luteus aquilus**
10(1). Punctation on pronotum shallow, ocellate 11
Punctation on pronotum deeper, not ocellate 12
11(10). Very small insects, 2.5 mm. long; disc of elytra somewhat flattened (Ponape) .... **minor**
Larger insects; elytra of normal convexity (Palaus) .... **lepidus**
12(10). Sides of prothorax arcuate; hind angles without carina (Guam) .... **arcuatus**
Sides of prothorax not arcuate; hind angles unicarinate 13
13(12). Elytra with defined patterns of contrasting yellow and black, or orange red and black 14
Elytra unicolorous but for flavous base, or vaguely patterned if at all 17
14(13). Orange-red insects with stigma on pronotum and apical third of elytra, black; 7 mm. or more long (Marianas) .... **melanocephalus**
Elytra black, each with two yellow maculae; smaller insects 15
15(14). Maculae reaching to lateral margin of elytron (Palaus) .... **sannio**
Maculae not reaching to lateral margin of elytron 16
16(15). Frontal margin of head acutely rounded on middle; basal slope of pronotum abrupt, weakly channeled (Marshalls) .... **lariversi**
Frontal margin broadly rounded; basal slope moderately declivous, acutely grooved (western Carolines) .... **venustus**
17(13). Pronotum generally fuscous (fore margin and hind angles excepted); elytra (1) fuscous with base lighter, or (2) brown with fuscous suffusions along suture and sometimes on sides 18
Pronotum and elytra uniformly brown or luteous 21
18(17). Elytra luteous at base but otherwise without contrasting coloration 19
Elytra brown to luteous, with suture dusky (Solomons, Marianas to Marshalls) .... **comptus**
Elytra brown with suture and sides blackish, the lateral markings often extending to the suture along the middle (Palaus to Marshalls) .... **comptus** var. **a**
19(18). Pronotum widely luteous across base 20
Pronotum luteous only on hind angles, not along middle of base (Palaus) .... **comptus** var. **b**
20(19). Frontal margin of head bluntly thickened; scutellum tumid (Yap) .... **silus**
Frontal margin rather fine; scutellum weakly convex (Kusaie) .... **similis**
21(17). Punctations of disc of pronotum close, their interspaces rugose; frontal margin of head rather acutely rounded .... **comptus**
Punctures on pronotal disc more widely separated, the spaces between them smooth; frontal margin of head broadly rounded (Kusaie) .... **simplex**

43. Melanoxanthus divergens Van Zwaluwenburg, n. sp.

Length, 3.5-4.0 mm.

Slender; dull. Yellowish brown with black markings as follows: (1) elongate maculae on either side of middle of pronotal disc, diverging anteriorly; (2) a more

or less rounded mark on each elytron near base on interval 3 (sometimes on intervals 2 to 4); (3) a usually triangular area behind middle on each elytron, its apex on interval 2, its base extending along anterior half of lateral margin but not attaining the humeral angle; and (4) a smaller area near apex of elytra. The scutellum varies from brown to black. Underside of abdomen irregularly black; antennae brown with intermediate segments blackish. Pubescence yellowish, fine, short.

Anterior margin of head broadly rounded, the area just behind it depressed; disc gently convex. Punctation fine, dense. Antennae weakly serrate beginning with segment 4; short, failing to reach tips of hind angles of prothorax by one segment (male) or by between 3 and 4 (female); 3 longer than 2 and more slender, the two together as long as 4; 5 to 10 decreasing in length.

Prothorax about as long as wide (hind angles excluded); sides strongly narrowed (male), or less strongly so (female) from about basal one-third to anterior margin; hind angles subparallel, very wide in male so that they exceed in width the elytra at the humeri. Pronotum moderately convex; basal slope moderate, without median groove; hind angles with a single weak carina near outer margin. Punctation of pronotum dense. deep, coarser toward sides, less dense on base.

Scutellum subtriangular, anteriorly emarginate, convex on disc; closely punctulate.

Elytra at base slightly (female) or markedly (male) narrower than distance across hind angles of prothorax; sides conjointly narrowed backward from about middle (female) or before (male), the apex briefly, shallowly emarginate with the angles finely mucronate. Striae finely punctate; intervals flat posteriorly. Mucro excavate between fore coxae, gently upturned behind. Sides of mesosternal cavity gently declivous. Propleura moderately grooved in front, sides overhung by margin of prothorax.

Holotype, male (US 62939), western Carolines, Palau Is., Babelthuap I., east Ngatpang, 65 m., Dec. 8, 1952, J. L. Gressitt. Allotype, female (BISHOP 2522), Palau Is., Babelthuap I., 65 m., light trap, Dec. 9, 1952, Gressitt.

DISTRIBUTION: Western Carolines (Palaus).

PALAU. BABELTHUAP: Ngerehelong, Dec. 1947, Dybas; wooded peak southwest of Ulimang, beating vegetation, Dec. 1947, Dybas; east Ngatpang, 65 m., Dec. 1952, Gressitt. KOROR: Two, Limestone Ridge south of inlet, beating vegetation, Jan. 1947, Dybas; northeast Limestone Ridge, 40 m., Dec. 1952, Gressitt. ULEBSEHEL (Aurapushekaru): Three, beating vegetation, Jan. 1948, Dybas. NGURUKDABEL (Urukthapel): Ngeremediu, 180 m., Dec. 1952, Gressitt.

M. divergens is readily distinguished from its congeners in Micronesia by the anteriorly divergent pair of black maculae on the pronotum. These suggest the Philippine *M. infuscatus* Fleutiaux, but in that species the markings are parallel. The elytral markings numbered 2, 3, and 4 in an earlier paragraph of this description, vary considerably in size, with the result that the light-colored areas bounded by them also vary in size and shape. The markings on the wing covers suggest those of the Philippine *M. vicinus* Fleutiaux.

44. **Melanoxanthus festivus** Van Zwaluwenburg, n. sp.

Length, 3.5-4.5 mm.

Slender; dull. Black with yellow as follows: (1) anterior part of head; (2) anterior margin and hind angles of pronotum, with a median line which does not reach the base; (3) base of elytra; an elongate mark before middle on each wing cover extending over about three intervals, but not attaining suture; a wider mark behind middle,

diverging posteriorly from its companion on the other elytron, and covering intervals 2 to 6 more or less. Antennae blackish with three basal segments and sometimes the last two to four apical ones brownish. Body beneath varying from black to yellowish brown. Pubescence fine, short, tawny.

Anterior margin of head rather acutely rounded on middle; front excavate anteriorly, vaguely impressed on disc. Punctation dense, moderately deep. Antennae weakly serrate beginning with segment 4; elongate, exceeding tips of hind angles of prothorax by about two segments (male) or just failing to reach them (female); 2 and 3 small, equal in length, together plainly shorter than 4; 5 to 10 diminishing in length; 11 rounded at apex.

Prothorax about as long as wide (hind angles excluded), sides narrowed forward from base of hind angles (more arcuately in female). Pronotum moderately convex; basal slope moderate, finely grooved on middle; hind angles subparallel, acutely unicarinate. Punctation of pronotum dense, moderately fine and shallow on disc, deeper toward sides, as dense on base as on disc.

Scutellum subtriangular, narrowed behind, convex on disc; finely punctulate.

Elytra narrower across humeri than distance across hind angles of prothorax. Sides conjointly narrowed backward from about middle (female) or before (male); apex briefly subtruncate or shallowly emarginate, with angles finely mucronate. Striae rather coarsely, deeply punctate; intervals convex. Mucro excavate between fore coxae, slightly upturned behind. Sides of mesosternal cavity gently declivous. Propleura channeled along middle, overhung along outer margin by side margin of the prothorax.

Holotype, male (CM), western Carolines, Palau Is., Ngergoi (Garakayo) I., Aug. 7, 1945, H. S. Dybas. Allotype, female (BISHOP 2523), same data as for holotype.

DISTRIBUTION: Western Carolines (Palaus).

PALAU. ULEBSEHEL (Aurapushekaru, Auluptagel): Three, beating vegetation, Jan. 1948, Dybas, two, May 1953, Beardsley. NGEREMEYAOS (Ngiramaous): Nov. 1947, Dybas. PELELIU: East coast, beating vegetation, Aug. 1945, Dybas, Aug. 1945, Hagen.

The yellow and black markings resemble those of some variants of *M. guamensis*, but in *M. festivus* the pronotal punctation is deeper, the interspaces rugose, and antennal segments 2 and 3 together are more obviously shorter than 4 than in *M. guamensis*. *M. festivus* also resembles the much smaller *M. minutus* Candèze from Borneo, but again, the pronotal punctation is deeper in *M. festivus*; the relative lengths of antennal segments 2 to 4 are very different in the two species.

45. Melanoxanthus guamensis Van Zwaluwenburg.

Melanoxanthus guamensis Van Zwaluwenburg, 1942, B. P. Bishop Mus., Bull. **172**: 154 (holotype male and the allotype are in Hawaiian Sugar Planters' Association collection in Honolulu).

DISTRIBUTION: Marianas (Guam).

Eleven specimens of this species, all from Guam, are in the survey collections, and I have yet to see *M. guamensis* from any other island. *M. dissitus* from nearby Saipan is extremely similar in color pattern, but has the anterior part of the head behind the frontal margin flat instead of concave as in *M.*

guamensis. The head of *M. guamensis* is always uniformly black. *M. vicinus* Fleutiaux from the Philippines also approaches *M. guamensis,* but in *M. vicinus* the median groove on the basal slope of the pronotum is sharply incised, whereas in *M. guamensis* it is shallowly impressed; in *M. vicinus* the pronotal punctation is shallower than in *M. guamensis,* with the individual punctures wider.

46. Melanoxanthus cracens Van Zwaluwenburg, n. sp. (fig. 9, *b*).

Length, 2.5-2.8 mm.

Very slender, subcylindrical. Head piceous with anterior part yellow brown; pronotum piceous but for flavous anterior margin and hind angles; scutellum brown to piceous; elytra black to piceous with flavous maculae which reach neither side margins nor suture, as follows: (1) longitudinal band on anterior half; (2) a smaller mark on posterior one-third, varying from round to elongate oval. Antennae piceous with two basal segments yellowish; legs flavous, underside of body brown to piceous with darker mottling on prosternum and propleura. Pubescence yellowish, inconspicuous.

Frontal margin of head acutely rounded, slightly reflexed. Head concave anteriorly, convex behind, a vague impression on disc. Punctation coarse, dense. Antennae of male reaching tips of hind angles of prothorax, or nearly so; segments 2 and 3 subequal, together shorter than 4; 4 to 10 subserrate, 4 longest, 5 to 10 decreasing in length; 11 narrowed on apical third.

Prothorax (not including hind angles) about as long as wide; sides evenly narrowed from base of hind angles to anterior margin. Pronotum moderately convex; basal slope gentle, weakly channeled with a fine impunctate median line; hind angles subparallel, finely unicarinate. Punctation of pronotum shallowly subumbilicate, the punctures separated from each other by more than their own diameters on the disc, more close-set toward sides.

Scutellum triangular, weakly convex.

Elytra at humeri narrower than prothorax across hind angles; sides narrowed backward from before middle to the rounded apex, the end of the suture finely mucronate on each wing cover. Punctures of striae coarse, shallow; intervals convex. Mucro slightly upcurved behind fore coxae, excavate between them. Sides of mesosternal cavity gently declivous. Propleura shallowly concave or "guttered."

Holotype, male (US 62940), western Carolines, Palau Is., Babelthuap I., wooded valley southwest of Ulimang, beating vegetation, Dec. 12, 1947, H. S. Dybas. Paratypes, all males, Palau Is., Babelthuap I., same data as for holotype; three, same data, Dec. 20, 1947, Dybas.

DISTRIBUTION: Western Carolines (Palaus).

M. cracens is very close to *M. guamensis* but (1) is smaller and more slender, (2) has the carina on the hind angles of the prothorax weaker than in *M. guamensis,* (3) has the lateral lobe of the aedeagus more strongly incurved at the apex than in *M. guamensis,* and (4) has the antennae slightly shorter in *M. cracens*. The yellow markings on the elytra vary in size, and the darker ones in intensity.

47. Melanoxanthus varians Van Zwaluwenburg, n. sp.

Length, 3.0-4.0 mm.

Slender. Head black; pronotum black with anterior margin and hind angles brown; scutellum black; elytra with two maculations which rarely coalesce: (1) one longitudinal

on anterior half on intervals 2 to 5 and including base; and (2) the other suboval, on posterior one-third, on intervals 2 to 6. Antennae dusky, three basal segments reddish; legs brown. Pubescence yellowish, fine.

Anterior margin of head broadly rounded, rather prominent, giving the effect of a depression on the flat part of the head just behind it; disc convex, sometimes vaguely grooved. Punctation rather fine, dense. Antennae weakly serrate beginning with segment 4; elongate, reaching tips of hind angles of prothorax (female) or exceeding them by nearly three segments (male); 2 and 3 small, subequal, together much shorter than 4; 4 to 10 diminishing in length.

Prothorax (hind angles excluded) a little wider than long; sides narrowed from base of hind angles to anterior margin. Pronotum moderately convex; basal slope gently, widely grooved on middle; hind angles parallel, acute, carinate or not, the carina either acute anteriorly and disappearing behind, or entirely lacking. Punctation of pronotum fine, dense, fairly deep except on base.

Scutellum subtriangular, anteriorly emarginate; finely punctulate.

Elytra as wide at humeri as across hind angles of prothorax; sides conjointly narrowed from about middle (female) or before (male); apex subtruncate. Striae moderately deeply punctured; intervals convex. Mucro margined on sides between fore coxae; slightly upcurved behind. Sides of mesosternal cavity sloping gently. Propleura "guttered" anteriorly.

Holotype, male (US 62941), eastern Carolines, Ponape I., Mt. Nahnalaud (Nanalaud), southeast slope, about 1,000 ft., beating vegetation, Mar. 17, 1948, H. S. Dybas. Allotype, female (BISHOP 2524), same data as for Holotype. Paratypes, all from Ponape: Mt. Dolen Nankep (Dolennankap), 1,800 ft., Aug. 11, 1946, Townes; two, Mt. Kupwuriso (Kupuriso), north slope, about 1,000-1,500 ft., beating vegetation, Mar. 11, 1948, Dybas; Mt. Nahnalaud, three, same data as for holotype (one in dead palm frond), two, northwest slope, about 500-1,500 ft., sweeping vegetation, Mar. 17, 1948, Dybas.

DISTRIBUTION: Marianas (Guam), eastern Carolines (Ponape).

Besides those listed above, there are 15 other specimens of *M. varians* in the survey collections, 10 of them from localities named above, taken at altitudes of 500 to 2,000 ft., the rest as follows: Two, Mt. Pairot (Beirut), 2,200 ft. (Gressitt gives 671 m. as the height of Pairot), June-Sept. 1950, Adams; Mt. Temwetemwensekir, 1,400 ft., June-Sept. 1950, Adams; Nahnponmal, 50 m., Jan. 29, 1953, Gressitt.

A variation from the typical *M. varians* is represented by a single specimen from the Mariana Islands (Guam I., Pt. Oca, light trap, June 1, 1945, G. E. Bohart and Gressitt). It has the anterior macula of the elytra much reduced in size, and separated from the yellowish base by a transverse black mark; in all other respects it agrees closely with typical *M. varians*.

The Nahnponmal specimen has the two maculae coalescent on each elytron. A female from Mount Pairot, which may be a teneral individual, has the front of the head yellowish, the yellow markings on the wing covers more extensive than usual, and the black attenuated to fuscous.

M. varians is remarkable for the variation in the carina of the hind angles of the prothorax, it may be well developed anteriorly, or may be entirely lacking. The front of the head immediately behind the frontal margin also varies from flat to distinctly concave.

In coloration *M. varians* is very similar to *M. exitiosus* Candèze from Borneo, but the latter has very shallow punctation on the pronotal disc, the pronotum more strongly convex than in *M. varians,* and the anterior part of the head convex, the frontal margin not prominent. The form with coalesced markings is similar in pattern to *M. bicinctus* Fleutiaux from the Philippines, but that species has the pronotal punctation shallow and the lower part of the head convex with the frontal margin not prominent.

48. Melanoxanthus dissitus Van Zwaluwenburg, n. sp.

Length, 3.5-4.5 mm.

Slender; moderately shiny. Head yellowish brown but for black hind margin and a median extension forward from it; pronotum black with anterior and lateral margins and hind angles yellowish brown (a round black spot on rear third of lateral margin in the allotype); scutellum fuscous. Elytra yellowish with suture dusky for most of its length and (1) a black lateral band of varying width on about the middle, which neither attains the humeri nor reaches farther back than to posterior two-thirds; at or behind the middle this band is connected to the corresponding one on the other elytron by a finer, transverse, sometimes zigzag black line; (2) near the apex is a triangular black macula which fails to reach the apex, suture, or lateral margin. Antennae and legs yellowish. Pubescence yellowish, fine, inconspicuous.

Frontal margin of head rather acutely rounded and somewhat raised, that part of the front immediately behind it, flat; disc convex. Punctation moderately coarse and dense. Antennae short, failing in the male to reach the tips of the hind angles of the prothorax by more than the length of the apical segment; weakly serrate beginning with segment 4; 2 and 3 subequal, together about as long as 4; 5 to 10 diminishing in length; 11 rounded at apex.

Prothorax (hind angles excluded) slightly wider than long; sides narrowed from base of hind angles to anterior margin. Pronotum moderately convex; basal slope rather abrupt, briefly incised to form shallow median channel; hind angles subparallel, acutely unicarinate; punctation of pronotum fine, uniform; denser and somewhat confluent toward sides.

Scutellum triangular, emarginate in front, convex on disc; finely punctulate.

Elytra at humeri as wide as across hind angles of prothorax; sides conjointly narrowed from middle (female) or before (male) to apex; tips of elytra subtruncate. Striae deeply punctured; intervals convex. Mucro margined on sides between fore coxae; slightly upcurved behind. Sides of mesosternal cavity gently sloping. Propleura with overhanging lateral margins; "guttered" anteriorly.

Holotype, male (CM), Mariana Is., Saipan I., Tuturam, Laulau Bay, beating vegetation, Jan. 21, 1945, H. S. Dybas. Allotype, female (BISHOP 2525), Mariana Is., Saipan I., Papako (Papago) area, beating vegetation, Jan. 17, 1945, Dybas. Two male paratypes, western Carolines, Palau Is., Ulebsehel (Aurapushekaru) I., beating vegetation, Jan. 14, 1948, Dybas; eastern Carolines, Ponape, near sea level, Mar. 5, 1948, Dybas.

DISTRIBUTION: Marianas (Saipan), western Carolines (Palaus), eastern Carolines (Ponape).

M. dissitus resembles *M. guamensis* very closely, but these differences serve to separate them: (1) the anterior part of the head behind the somewhat raised frontal margin is flat in *M. dissitus,* concave in *M. guamensis;* (2) the head of *M. dissitus* is yellowish brown with a posterior median spot and hind margin black; in all the *M. guamensis* which I have seen, the head is uniformly black; and (3) the antennae in *M. dissitus* are somewhat shorter than in *M. guamensis,* failing in the male, by more than the length of the apical segment, to reach the tips of the hind angles of the prothorax.

49. Melanoxanthus argus Van Zwaluwenburg, n. sp.

Length, 3.5 mm.

Fairly robust; subnitid. Head black with anterior part rufous; prothorax black, its anterior margin and hind angles yellowish brown; elytra yellowish brown, fuscous at base, and dusky along apical half of suture and the side margins and on the apex. Antennae brown; legs irregularly brown and fuscous. Pubescence yellowish, fine, semi-erect.

Front of head rather acutely rounded on middle; anterior margin prominent, the anterior part of head flat; disc convex. Punctation finely subocellate, dense, uniform. Antennae robust, short, failing to reach base of hind angles of prothorax; weakly serrate beginning with segment 4; 3 as long as 2 but narrower; 2 and 3 together subequal in length to 4; 4 to 10 nearly as wide as long.

Prothorax (hind angles excluded) wider than long; sides subparallel from tips of hind angles to about middle, and rounded from that point to the anterior margin. Pronotum moderately convex; basal slope abrupt, with a shallow channel on middle; hind angles parallel, strongly unicarinate; punctation of pronotum ocellate on disc and sides, dense; finer and sparser on basal slope.

Scutellum subtriangular, emarginate in front, convex on disc, acute at apex.

Elytra flattened on disc; as wide at humeri as across hind angles of prothorax; sides conjointly narrowed from about middle to the apex. Striae coarsely, deeply punctured toward base of elytra, more weakly toward apex; intervals convex on basal half. Mucro margined between fore coxae; slightly upcurved behind. Sides of mesosternal cavity rather steeply sloped. Propleura with wide, shallow, ocellate punctation; weakly "guttered."

Holotype, female (US 62942), eastern Carolines, Kusaie I., Mt. Buache, 1,500-1,930 ft., Aug. 19, 1946, H. K. Townes.

DISTRIBUTION: Eastern Carolines (Kusaie).

This species, with its distinctive ocellate punctation on pronotum and propleura, is in this respect unlike any other known to me in the genus.

50. Melanoxanthus luteus luteus Van Zwaluwenburg.

Melanoxanthus luteus Van Zwaluwenburg, 1952, Hawaiian Ent. Soc., Proc. 14 (3) : 439 (holotype female and allotype are in California Academy of Sciences).

DISTRIBUTION: Eastern Carolines (Truk).

This species was described from Wena (Moen) Island in the Truk Atoll. Two specimens from that same island are among the survey material [Mar.

2, 1945, Kono; Mt. Chukumong (Teroken), breadfruit grove, 80 m., light trap, Feb. 5, 1953, Gressitt]. A subspecies of *M. luteus* occurs in the Palaus.

51. Melanoxanthus luteus aquilus Van Zwaluwenburg, n. subsp.

The subspecies *aquilus* differs from typical *M. luteus* as follows:

M. luteus aquilus	M. luteus luteus
1. Pronotum black, with anterior margin and hind angles yellowish brown	Pronotum generally luteous, its anterior half sometimes black
2. Elytra brown, sutural line black	Elytra luteous, sometimes infuscate
3. Punctation on pronotum subocellate; deeper than in *M. luteus*	Pronotal punctation finer
4. Antennae shorter than in *M. luteus;* in female failing by more than three segments to reach tips of hind angles of prothorax	Antennae longer; in female failing by not more than two segments to reach tips of hind angles

Holotype, male (US 62942), western Carolines, Palau Is., Babelthuap I., Ulimang, Dec. 11, 1947, H. S. Dybas. Allotype, female (CM), Palau Is., Peleliu I., east coast, July 31, 1945, Dybas. Paratype, female (BISHOP), Palau Is., Koror I., Nov. 1947, Dybas.

DISTRIBUTION: Western Carolines (Palaus).

52. Melanoxanthus minor Van Zwaluwenburg, n. sp.

Length, 2.5 mm.

Stout; moderately shiny. Black, with hind angles of prothorax flavous; a short longitudinal yellowish streak before middle on each elytron on intervals 5 and 6; another vaguely round spot behind middle on about intervals 5 to 7; antennae blackish, reddish at base; legs mottled brown and black. Pubescence tawny, fine, inconspicuous.

Front broadly rounded; anterior margin not prominent; lower part of head flat; disc convex. Punctation fine, dense, uniform. Antennae reaching to about tips of hind angles of prothorax; stout, weakly serrate beginning with segment 4; 2 and 3 subequal, together about as long as 4; 4 to 10 decreasing in length.

Prothorax (hind angles excluded) slightly longer than wide; sides subparallel from base of hind angles to about middle, thence narrowed to anterior margin. Pronotum moderately convex; basal slope rather abrupt, vaguely grooved on middle; hind angles diverging slightly, finely unicarinate; punctation ocellate, shallow, dense, even on base.

Scutellum bluntly triangular, flat.

Elytra as wide at humeri as across hind angles of prothorax; disc somewhat flattened; sides conjointly narrowed from before middle to apex. Striae coarsely punctate; intervals convex. Mucro margined on sides between fore coxae, slightly upcurved behind. Sides of mesosternal cavity declivous. Propleura overhung by lateral margins, "guttered" anteriorly.

Holotype, probable male (US 62944), eastern Carolines, Ponape I., Agric. Exper. Sta., Colonia, light trap, by stream pool, 16 m., Jan. 7, 1953, J. L. Gressitt.

DISTRIBUTION: Eastern Carolines (Ponape).

This is the smallest species of the genus in the survey collections from Micronesia. Its elytral pattern resembles that of *M. glyphonides* Van Zwaluwenburg from New Guinea, but the latter has the fronto-clypeal region prominent, which is not true of *M. minor*; furthermore, the front of the head is concave in *M. glyphonides,* flat in *M. minor.*

53. **Melanoxanthus lepidus** Van Zwaluwenburg, n. sp.

Length, 3.0-3.5 mm.

Moderately slender; dull. Color black but for flavous hind angles of prothorax, and two flavous maculations on each elytron: an elongate one on basal half on intervals 4 to 7, which does not reach the humeri, and another, shorter one behind middle on intervals 2 to 8 (or narrower). Antennae fuscous with rufous base; legs brown to fuscous. Pubescence tawny, fine.

Frontal margin of head acutely rounded, not prominent; head convex. Antennae robust, weakly serrate beginning with segment 4; short, reaching to about base of hind angles of prothorax; 2 and 3 subequal, together about as long as 4; 4 to 10 decreasing in length; 6 to 10 transverse; 11 broadly oval. Punctation of head fine, dense, uniform.

Prothorax (hind angles excluded) slightly wider than long; sides subparallel on basal half, thence narrowed to anterior margin. Pronotum moderately convex; basal slope abrupt, sharply grooved medianly; hind angles acute, subparallel, finely unicarinate; punctation of pronotum shallow, ocellate, uniformly dense on disc, sides, and base.

Scutellum strongly inclined, subtriangular, apex acutely prolonged, anterior angles prominent.

Elytra about as wide at humeri as across hind angles of prothorax; sides conjointly narrowed from about middle to apex which is entire. Striae strongly punctate; intervals convex toward base. Mucro margined between fore coxae, slightly upturned behind. Sides of mesosternal cavity declivous. Sides of prothorax overhanging propleura anteriorly.

Holotype, female (US 62945), western Carolines, Palau Is., Babelthuap I., east Ngatpang, 65 m., sweeping, Dec. 8, 1952, J. L. Gressitt. Paratype, female, Palau Is., Ulebsehel (Aurapushekaru) I., beating vegetation, Jan. 14, 1948, Dybas.

DISTRIBUTION: Western Carolines (Palaus).

In size, coloration, and punctation *M. lepidus* is very similar to *M. exitiosus* Candèze. However, *M. lepidus* is more slender, has the prothorax more attenuate on the sides, and has the prothorax less strongly convex than in that Indo-Malayan species.

54. **Melanoxanthus arcuatus** Van Zwaluwenburg, n. sp.

Length, 3.5 mm.

Stout; subnitid. Blackish brown; front of head yellowish; front margin and hind angles of prothorax yellowish; elytra not so dusky as pronotum, flavous at base; each elytron with vague yellowish markings as follows: on anterior half, on intervals 3 to 7, separated from the basal yellow patch; and behind the middle another short spot on intervals 4 to 7; yellowish on intervals 1 and 2 behind middle, extending backward to include entire apex; antennae brown with lighter base. Pubescence tawny, short, semi-erect.

Frontal margin of head rather acutely rounded on middle, not prominent; head flat anteriorly, convex behind. Antennae stout, weakly serrate beginning with segment 4; short, reaching to about base of hind angles of prothorax; 2 and 3 subequal, together about as long as 4; 4 to 10 decreasing in length. Punctation of head moderately coarse, dense.

Prothorax (hind angles excluded) wider than long; sides arcuate from base of hind angles. Pronotum strongly convex; basal slope moderately abrupt, not grooved on middle; hind angles acute, converging backward with apex turned outward, not carinate. Punctation of pronotum subaciculate, dense, even on base.

Scutellum subtriangular, weakly convex; finely punctulate.

Elytra at humeri narrower than greatest width of prothorax, but about as wide as distance across hind angles; sides conjointly narrowed from about middle (strongly nar-

rowed near apex) to apex, which is entire. Striae deeply punctured; intervals convex. Propleura convex medianly, not overhung by lateral margin; more coarsely and more sparsely punctured than prosternum.

Holotype, probable female (US 62946), Mariana Is., Guam I., Pt. Ritidian, Oct. 1952, N. L. H. Krauss.

DISTRIBUTION: Marianas (Guam).

Another specimen, certainly a female, which I believe to be *M. arcuatus*, is labeled: Mariana Is., Guam I., Piti (Pati) Point, June 4, 1945, Dybas. It differs from the type in having the front of the head more broadly rounded, the prothorax less strongly arcuate, and the pronotum less strongly convex. However, it has the same general habitus as the holotype, and its non-carinate hind angles of the prothorax, as well as the identical, though more strongly contrasted, color pattern.

The arcuate sides of the prothorax and the strongly convex pronotum set this species apart from all others of the genus which I have seen, except *M. nigricornis* Candèze, a species with which it has few other similarities.

55. Melanoxanthus melanocephalus (Fabricius).

Elater melanocephalus Fabricius, 1781, Spec. Ins. **1**: 272 (I do not know the present whereabouts of the type).

Melanoxanthus melanocephalus, Candèze, 1859, Monogr. Élat. **2**: 512, pl. 7, fig. 12; redescribed.—Van Zwaluwenburg, 1942, B. P. Bishop Mus., Bull. **172**: 53.

DISTRIBUTION: Polynesia (Tahiti, Hawaii, Palmyra, Baker I., Samoa), Marianas, Okinawa, Formosa, Philippines, westward to Madagascar and Zanzibar.

S. MARIANA IS. SAIPAN: Oct. 1920, Feb. 1935, Jan. 1936, Uchiyama. GUAM: Recorded previously.

56. Melanoxanthus sannio Van Zwaluwenburg, n. sp.

Length, 5.0 mm.

Moderately elongate; dull. Head black, vaguely rufous anteriorly; pronotum black with anterior angles, a short extension backward from the fore angle and the hind angles flavous; scutellum dusky; elytra yellow with a blackish transverse band behind the middle, which is prolonged forward briefly along the suture, and connected behind by a dusky sutural band with a subapical blackish mark which reaches neither the tip nor the sides of the wing cover; antennae fuscous, base rufous; legs flavous; body beneath brownish, the abdomen generally darker. Pubescence yellowish, short, inconspicuous.

Head strongly convex, broadly rounded in front; antennae weakly serrate beginning with segment 4; short, reaching only to base of hind angles of prothorax; 2 shorter than 3, the two together slightly longer than 4. Punctation of head ocellate, dense.

Prothorax (hind angles excluded) about as long as wide; sides faintly arcuate from tips of hind angles to about posterior one-third, thence narrowed to anterior margin; lateral margin strongly inferior on anterior one-third. Pronotum moderately convex; basal slope gently declivous, sharply grooved on middle; hind angles stout, slightly convergent, strongly, acutely unicarinate. Punctation of pronotum subocellate, deep, dense, uniform.

Scutellum steeply declivous, subtriangular, convex; finely punctulate.

Elytra at humeri as wide as across tips of hind angles of prothorax; sides narrowed from about middle to apex, which is entire. Strial punctures deep; intervals convex. Propleura strongly "guttered" in front.

Holotype, female (US 62947), western Carolines, Palau Is., Angaur I., May 1, 1954, J. W. Beardsley.

DISTRIBUTION: Western Carolines (Palaus).

The color and design of this insect suggest relationship with *M. approximatus* Candèze. However, the sides of the prothorax are more nearly parallel in the latter. The basal slope of the pronotum is abrupt and ungrooved in *M. approximatus*, gentle and medianly grooved in *M. sannio*.

57. Melanoxanthus lariversi Van Zwaluwenburg, n. sp.

Length, 3.25-4.0 mm.

Moderately slender; dull. Head black; pronotum black with fore angles sometimes, hind angles usually, and base sometimes, flavous; scutellum dusky; elytra yellow and black, the basal half of each yellow except along suture and side margin, which are blackish; an oval yellow spot behind the middle, about half the size of the anterior one, which fails to reach either suture or side margin; antennae fuscous, base sometimes rufous; legs flavous; body beneath generally brown with flavous mottling on prosternum and propleura. Pubescence yellow, short.

Frontal margin of head rather acutely rounded on middle; head convex. Antennae weakly serrate beginning with segment 4; moderately long, failing to reach apex of hind angles of prothorax by one segment (male) or more (female); 2 and 3 subequal, together about as long as 4; punctation of head fairly coarse, moderately impressed, dense.

Prothorax (hind angles excluded) slightly wider than long, even in male; sides narrowed from base of hind angles to anterior margin. Pronotum moderately convex; basal slope abrupt, weakly channeled on middle; hind angles subparallel, strongly, acutely unicarinate; punctation of pronotum fine, deep, uniform, even on basal slope.

Scutellum strongly inclined, subtriangular, convex.

Elytra at humeri about as wide as distance across hind angles of prothorax; sides narrowed from about middle (female) or before (male) to the rounded apex. Striae deep; intervals convex. Propleura "guttered" in front; overhung by side margin of prothorax.

Holotype, male (US 62948), Marshall Is., Arno Atoll, Ine I., sea beach, light, Aug. 25, 1950, Ira La Rivers. Allotype, female (BISHOP 2526) Marshall Is., Arno Atoll, light, July 19, 1950, La Rivers. Paratype, male, same data as for holotype.

DISTRIBUTION: Marshalls, Ratak Chain, Arno Atoll.

This species is related to the Philippine *M. approximatus* Candèze, from which it can be separated by (1) the less elongate, less parallel prothorax; (2) the acutely rounded frontal margin of the head, which in *M. approximatus* is broadly rounded; and (3) the sparse, coarse punctation on the propleura, which in *M. approximatus* is similar to and as dense as on the prosternum.

Although *M. lariversi* is known only from the Marshalls, it seems unlikely that it is endemic there.

58. Melanoxanthus venustus Van Zwaluwenburg, n. sp.

Length, 3.5-4.0 mm.

Moderately elongate; dull. Head black; prothorax black with flavous hind angles; elytra yellow and black: on each a yellow macula on basal half beginning on anterior margin and lying on intervals 2 to 7, rounded behind; another shorter, oval yellow one behind middle, on intervals 2 to 7. Antennae black to fuscous, three segments rufous; legs flavous to brown; body beneath fuscous with brown mottlings. Pubescence yellowish, fine.

Head convex with frontal margin broadly rounded; antennae stout, weakly serrate beginning with segment 4; short, reaching about as far as fore coxae; 2 and 3 subequal, together about as long as 4; 4 to 10 decreasing in length; 6 to 10 transverse. Punctation of head rather coarse, dense.

Prothorax (hind angles excluded) about as long as wide; sides subparallel on basal half, thence narrowed to fore margin. Pronotum moderately convex; basal slope moderately inclined, strongly and finely grooved on middle; hind angles parallel, strongly, acutely unicarinate; punctation on pronotum rather fine, dense and uniform, even on base.

Scutellum strongly declivous, subtriangular, convex.

Elytra as wide at humeri as across hind angles of prothorax; sides narrowed from about middle to the conjointly rounded apex. Striae deep; intervals convex. Outer sides of propleura only weakly overhung by sides of prothorax.

Holotype, female (US 62949), western Carolines, Elato Atoll, Elato I., Feb. 1953, J. W. Beardsley. Two paratypes, both probably females, western Carolines, Woleai Atoll, Falalis I., Sept. 20, 1952, Krauss; Elato Atoll, same data as for holotype.

DISTRIBUTION: Western Carolines (Woleai, Elato).

With *M. sannio* and *M. lariversi,* this species forms a group which is closely similar in pattern to *M. approximatus* Candèze. *M. venustus* can be separated from *M. approximatus* by (1) its less elongate, less parallel prothorax; (2) the shorter antennae which in *M. approximatus* extend well beyond the fore coxae; and (3) the coarse, sparse punctation on the propleura which in *M. approximatus* are densely and relatively finely punctate.

From *M. sannio,* both *M. venustus* and *M. lariversi* can be separated by the failure of the yellow maculae to reach the sides of the elytra. *M. venustus* has (1) the frontal margin of the head broadly, not subacutely, rounded; (2) the basal slope of the pronotum gradual, not abrupt as in *M. lariversi;* and (3) finer pronotal punctation than in *M. lariversi.*

59. Melanoxanthus comptus Van Zwaluwenburg.

Melanoxanthus comptus Van Zwaluwenburg, 1928, Insects of Samoa **4** (2): 123, fig. 10 (holotype is in British Museum, a paratype in Bishop Museum).

Pacificola vitiensis Van Zwaluwenburg, 1932, B. P. Bishop Mus., Bull. **98**: 137, figs. 40, *c* and 41, *e*; 1943, Hawaiian Ent. Soc., Proc. **11** (3): 297; new synonym.

Pacificola compta, Van Zwaluwenburg, 1932, B. P. Bishop Mus., Bull. **98**: 133.

Melanoxanthus palustris Van Zwaluwenburg, 1942, B. P. Bishop Mus., Bull. **172**: 54; new synonym.

DISTRIBUTION: Marianas, western Carolines, eastern Carolines, Marshalls, Samoa, Solomons, Fiji, Rotuma.

S. MARIANA IS. Guam: Type locality of *M. palustris.*

PALAU. Babelthuap: Ngiwal, Feb. 1938, Esaki.

CAROLINE ATOLLS. ULITHI: Fassarai I., July 1946, Townes. LOSAP: Six, Losap I., on *Callophyllum inophyllum,* Oct. 1952, Beardsley. KAPINGAMARANGI: Hare I., on *Guettarda* along lagoon shore, Aug. 1954, Niering.

KUSAIE. Malem, Dec. 1937, Esaki; Mutunlik, 22 m., at light, Feb. 1953, Clarke; Pusurik, 1 m., beating, Apr. 1953, Clarke; Lele I., Aug. 1946, Townes.

MARSHALL IS. UJELANG: Ujelang I., Oct. 1953, Beardsley. ARNO: Two, June 1950, Usinger; Ine I., June 1950, Usinger. EBON: Three, Ebon I., Sept. 1953, Beardsley.

Examination of all available type material of *M. comptus, Pacificola vitiensis,* and *M. palustris* makes it evident to me that no structural differences separate the three. Throughout its wide range from Samoa to the Marianas, *M. comptus* exhibits slight variations in the rounding of the frontal margin of the head, and in the channeling of the basal slope of the pronotum, but these are neither considerable nor consistent. I take this opportunity to emend a statement in the original description of *M. comptus* which gave the pubescence as white; in the paratype, at least, the pubescence is tawny.

This species varies considerably in coloration, and I have indicated two varieties for convenience. The variations are not always well defined, nor are they restricted to particular island groups.

The genus *Pacificola,* proposed for 15 species including *M. comptus,* was defined as having erect pubescence on tarsal segments 3 to 5, and the fifth tarsal segment shorter than in *Melanoxanthus. M. comptus* was separated from *P. vitiensis* by the latter's supposedly more acutely widened hind coxal plates. Reexamination of the types and of other material from Fiji and Samoa shows no real difference in this respect, the sharpness of the angle in *P. vitiensis* having been exaggerated because of the aspect in which it was viewed. I believe *M. comptus* and *P. vitiensis,* as well as *M. palustris,* to be conspecific.

The castaneous form with dusky suture and sometimes fuscous pronotum, is the typical color form. A series of 12 *M. comptus* from Tutuila in the Samoan Islands (on *hau* seed pods, Feb. 22, 1954, C. P. Hoyt) consists mainly of this typical form with one or two which can be assigned to variety *a.* In a collection loaned to the Hawaiian Sugar Planters' Association by the British Museum, are two typical specimens of *M. comptus* from the Solomons (Guadalcanal I., Feb. 5, 1932, R. J. A. W. Lever, and Nangatanal I., Nggela, June 26, 1935, Lever).

Variety **a.**

Scutellum blackish; elytra brown with suture and sides blackish, the dark areas on the sides sometimes meeting on the suture at about the middle.

DISTRIBUTION: Western Carolines, eastern Carolines, Marshalls, Samoa.

PALAU. KOROR: Sweeping *Scyphiphora hydrophyllacea,* Apr. 1954, Beardsley. NGURUKDABEL (Urukthapel): Eight, on *Tournefortia* flowers, Sept. 1953, Beardsley. PELELIU: Thirteen, Feb. 1948, Dybas; five, Mt. Amiangel, Dec. 1952, Gressitt.

CAROLINE ATOLLS. LOSAP: Two, Losap I., on *Callophyllum inophyllum,* Oct. 1952, Beardsley. NUKUORO: Nukuoro I., Aug. 1946, Townes.

KUSAIE. Two, Mutunlik, 22 m., Apr. 1953, Clarke.

MARSHALL IS. BIKAR: Aug. 1952, Fosberg, on *Scaevola frutescens* on open gravel flat, Aug. 1952, Fosberg. EBON: Six, Sept. 1953, Beardsley.

This color variety resembles the Philippine *M. bicinctus* Fleutiaux, but differs as follows: (1) form more slender than in *M. bicinctus;* (2) punctures on pronotum deep, not shallowly ocellate as in *M. bicinctus;* and (3) apex of the elytra brownish on middle, not entirely black.

Variety **b.**

Dorsal surface uniformly black but for hind angles of pronotum and the base of the elytra, which are flavous.

DISTRIBUTION: Western Carolines, eastern Carolines, Marshalls, Samoa.

PALAU. KOROR: Twelve, sweeping *Scyphiphora hydrophyllacea,* Apr. 1954, Beardsley. NGURUKDABEL (Urukthapel): on *Tournefortia* flowers, Sept. 1953. PELELIU: Three, Feb. 1948, Dybas.

60. **Melanoxanthus silus** Van Zwaluwenburg, n. sp.

Length, 5.0 mm.

Moderately elongate; subnitid. Prothorax fuscous, with fore margin and hind angles flavous; scutellum and elytra, except flavous base, fuscous; antennae flavous with base lighter; legs flavous. Pubescence tawny, fine, short.

Head flat anteriorly, convex on disc; frontal margin bluntly thickened; antennae moderately stout; short, extending beyond fore coxae by only about one segment; weakly serrate beginning with segment 4; 2 and 3 subequal, together about as long as 4; 4 to 10 decreasing in length, but even the shortest segment is not transverse. Punctation of head moderately coarse and shallow, punctures subocellate, but not circular.

Prothorax (hind angles excluded) longer than wide; sides subparallel on basal one-third, thence gradually narrowed to fore margin. Pronotum rather strongly convex; basal slope moderate, with sharply incised median line; hind angles subparallel, stout, acutely unicarinate; punctation on pronotum fine, aciculate in front.

Scutellum subtriangular, strongly convex on disc.

Elytra about as wide across humeri as prothorax across hind angles; sides narrowed from about middle to the entire, conjointly rounded tips. Striae strongly punctured; intervals convex. Mucro concave between fore coxae; briefly upcurved behind.

Holotype, female (US 62950), western Carolines, Yap I., hill behind Yaptown, 60 m., Nov. 28, 1952, J. L. Gressitt.

DISTRIBUTION: Western Carolines (Yap).

This species strongly suggests the subspecies of *M. luteus,* but in *M. l. aquilus* the front of the head is concave, whereas in *M. silus* it is flat. Furthermore, the frontal margin of the head is bluntly thickened in *M. silus,* and acute in *M. l. aquilus,* and the scutellum is tumid instead of gently convex. The blunt frontal margin and the strongly convex scutellum will distinguish *M. silus* from *M. similis.*

61. **Melanoxanthus similis** Van Zwaluwenburg, n. sp.

Length, 4.0-4.5 mm.

Slender; subnitid. Dorsal surface uniformly fuscous except for flavous areas on front of head, on fore margin and hind angles of prothorax, and on base of elytra. Antennae brown, base flavous; legs flavous. Pubescence tawny, fine.

Head flat anteriorly; frontal margin moderately acutely rounded; antennae weakly serrate beginning with segment 4; failing to reach hind angles of prothorax by at least one segment; 2 and 3 subequal, together about as long as 4; 4 to 10 decreasing in length. Punctation of head rather coarse and shallow.

Prothorax (hind angles excluded) about as long as wide; sides parallel on basal third, thence narrowed to fore margin. Pronotum moderately convex; basal slope rather abrupt, with brief, shallow median channel; hind angles subparallel, short, finely unicarinate; punctation of pronotum fine, moderately deep, uniform.

Scutellum subtriangular, somewhat convex.

Elytra as wide at humeri as prothorax across hind angles; sides narrowed backward from slightly before middle; apex entire, tips conjointly rounded. Striae well impressed; intervals convex. Mucro concave between fore coxae, slightly upcurved behind; the apex acute.

Holotype, male (US 62951), eastern Carolines, Kusaie Is., Mutunlik, 22 m., Feb. 3, 1953, J. F. G. Clarke.

KUSAIE. Two, Mutunlik, 22 m., at light, Feb. 1953, Clarke; two, "Hill 541," 165 m., at light and beating, Mar. 1953, Clarke; Mwot, at light, Apr. 1953, Clarke; Mt. Matante, 300 m., at light, Apr. 1953, Clarke.

DISTRIBUTION: Eastern Carolines (Kusaie).

M. similis is very similar to *M. silus* from which it can be separated by the finer frontal margin and gently convex scutellum of *M. similis.* The pronotum in *M. silus* is somewhat more strongly convex than in *M. similis.*

62. **Melanoxanthus simplex** Van Zwaluwenburg, n. sp.

Length, 4.0-5.5 mm.

Moderately slender; shiny. Uniformly reddish brown with hind angles of prothorax and base of elytra flavous; antennae brown, legs flavous. Pubescence tawny, fine.

Head broadly rounded anteriorly; flat on anterior half; antennae short, segment 9 in male reaching fore coxae; weakly serrate beginning with segment 4; 2 and 3 subequal, together about as long as 4; 4 to 10 decreasing in length. Punctation of head rather coarse.

Prothorax (hind angles excluded) about as long as wide; sides parallel on basal third, thence narrowed to fore margin. Pronotum moderately convex; basal slope rather abrupt, shallowly grooved on middle; hind angles parallel, short, acute, finely unicarinate. Punctation on pronotum rather shallow, especially toward base, the punctures separated from one another by spaces equal to their own diameters, the interspaces flat.

Scutellum subtriangular, slightly convex; finely punctulate.

Elytra as wide at humeri as prothorax across hind angles; sides narrowed from about middle (female) or before (male) to the conjointly rounded apex. Striae rather strongly punctate; intervals convex.

Holotype, male (US 62952), eastern Carolines, Kusaie I., Lele (Lelu) I., 100 m., at light, Feb. 18, 1953, J. F. G. Clarke. Allotype, female (BISHOP 2527), Kusaie, Lele I., 100 m., beating, Mar. 14, 1953, Clarke.

KUSAIE. Lele, 100 m., beating, Mar. 1953, Clarke; two, Mutunlik, 22 m., at light, Feb.-Mar. 1953, Clarke; Mt. Matante, 300 m., at light, Apr. 1953, Clarke; four, "Hill 541," 165 m., at light and beating, Mar.-Apr. 1953, Clarke.

PONAPE. Two, Colonia, near sea level, at light, Feb. 1948, Dybas; Mt. Temwetemwensekir, 180 m., Jan. 1953, Gressitt.

DISTRIBUTION: Eastern Carolines (Ponape, Kusaie).

This species is very similar to *M. comptus* var., but has the prothorax relatively more elongate, the pronotal punctation less dense with the interspaces flat instead of subrugose, and the frontal margin of the head broadly, instead of rather acutely, rounded.

PHYSORRHININAE

This subfamily is represented in Micronesia by a single genus, accepted here with reservations as being *Anchastus*.

Genus **Anchastus** LeConte

Anchastus LeConte, 1853, Am. Philos. Soc., Trans. **10**: 459 (type: *Anchastus digitatus* LeConte; eastern United States).

Earlier [1939, Hawaiian Ent. Soc., Proc. **10** (2): 278] I pointed out differences existing between North American species of *Anchastus* and certain Pacific species ascribed to that genus. Attention was called to differences in larval structure between *A. sericans* Candèze from Arizona and *A. swezeyi* Van Zwaluwenburg from the Hawaiian island of Maui. In *A. sericans,* the ninth abdominal segment of the larva is heavily and complexly armored in a manner suggestive of *Simodactylus,* whereas in *A. swezeyi* that segment is unarmored and smoothly elliptical. These differences, it was suggested, are too profound to permit retention of the two in the same genus.

On adult characters, *A. swezeyi* and all other Pacific species examined, including the three from Micronesia to be discussed here, differ from American *Anchastus* in tarsal structure. In the Pacific species segment 1 of the hind tarsus is as long as the combined length of segments 2 to 5; tarsal segment 1 is plainly shorter than 2 to 5 together in all the American species I have had opportunity to examine [*A. asper* LeConte, *A. bicarinatus* LeConte, *A. bicolor* LeConte, *A. cinereipennis* (Eschscholtz), and *A. sericans* Candèze].

Principally because of the larval differences, I believe *A. swezeyi* to be generically distinct from the American *Anchastus,* but until larvae of more than a single Pacific species can be examined, and until further study of the adults reveals additional characters to separate the two groups, I retain the Pacific species, including the Hawaiian one, in the genus *Anchastus.*

Key to Micronesian Species of Anchastus

1. Hind angles of prothorax unicarinate 2
   Hind angles bicarinate (Palaus) .... **dybasi**
2. Hind coxal plate nearly quadrate on inner half, not acutely produced at widest point (Palaus) .... **incertus**
   Hind coxal plate strongly produced at widest point (Palaus, Truk) .... **trukensis**

63. Anchastus trukensis Van Zwaluwenburg (figs. 10, *b*; 11, *a*).

Anchastus trukensis Van Zwaluwenburg, 1940, B. P. Bishop Mus., Occ. Papers **16** (5) : 126 (holotype in Bishop Museum).

DISTRIBUTION: Western and eastern Carolines.

PALAU. Babelthuap: Three, Ulimang (one beaten from dead banana cluster), Dec. 1947, Dybas; two, wooded peak southwest of Ulimang, Dec. 1947, Dybas. Koror: Nov. 1947, Dybas.

Specimens among the survey material extend the range of this species to the Palaus.

64. Anchastus incertus Van Zwaluwenburg, n. sp. (fig. 10, *c*).

Length, 7.0 mm.

Shiny. Generally brown; head rufous; pronotum with flavous fore angles and hind margin; elytra with flavous base; appendages light brown. Pubescence tawny, semi-erect.

Head evenly convex, moderately punctate; antennae subserrate beginning with segment 3; long, exceeding hind angles of prothorax by more than three segments (male); 3 and 4 of same size and shape; 4 to 10 increasingly slender.

Prothorax (including hind angles) wider than long; sides subparallel on basal half, thence narrowed to fore margin. Pronotum moderately convex; basal slope faintly channeled on middle; hind angles stout, subparallel, strongly unicarinate. Punctation on pronotum ocellate on sides, finer on disc.

Scutellum oval, flat; rather finely punctulate.

Elytra as wide at humeri as prothorax; sides narrowed backward from before middle. Striae well impressed, but not deep; intervals convex toward base. Propleura without longitudinal impression. Mucro abruptly upturned behind fore coxae. Sides of mesosternal cavity steeply inclined. Hind coxal plate subquadrate on inner half, its outer angle only slightly produced.

Holotype, male (CM), western Carolines, Palau Is., Peleliu I., July 29, 1945, H. S. Dybas. (The aedeagus is mounted on a point attached to the specimen.)

DISTRIBUTION: Western Carolines (Palaus).

This species may be close to *A. haddeni* Fleutiaux from Luzon. I have not seen that species, but it is described as having the pronotal punctation

widely umbilicate. The aedeagus of *A. incertus* (fig. 10, *c*) is similar to that of *A. cheesmanae,* from the New Hebrides [1940, B. P. Bishop Mus., Occ. Papers **16** (5) : 124, fig. 6, *c*].

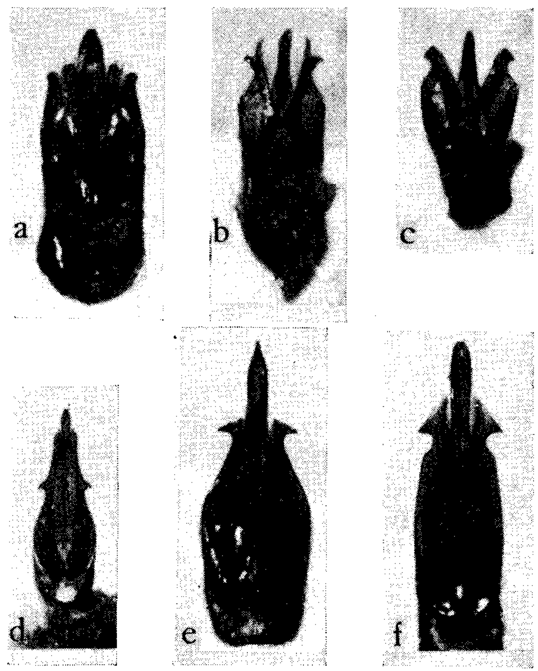


FIGURE 10.—**a,** *Simodactylus tastui,* Onotoa; **b,** *Anchastus trukensis,* Babelthuap; **c,** *A. incertus,* holotype, Peleliu, **d,** *A. dybasi,* allotype, Babelthuap; **e,** *Neodiploconus exilis,* Koror; **f,** *N. boninsis,* holotype, Haha Jima.

65. **Anchastus dybasi** Van Zwaluwenburg, n. sp. (fig. 10, *d*).

Length, 6.5-7.75 mm.

Robust; moderately shiny. Uniformly dark rufous to nearly black; antennae and legs rufous. Puescence yellowish brown, fine, semi-erect.

Head evenly convex; frontal margin broadly rounded, slightly reflexed at outer ends; punctation rather coarse, uniform. Antennae barely exceeding tips of hind angles of prothorax (male) or just failing to reach them (female); weakly serrate beginning with segment 3; 3 as long as 4 and of similar shape; 11 rather acutely narrowed at apex.

Prothorax (measured to tips of hind angles) about as long as wide in both sexes; widest at base of hind angles, sides narrowed from that point to the fore margin, more or less arcuately in female. Pronotum moderately convex; basal slope without median channel; hind angles stout, subparallel, tips incurved, acutely bicarinate. Punctation on pronotum coarse toward sides, sparser, finer on disc.

Scutellum oval, flat; rather coarsely punctulate.

Elytra as wide across humeri as prothorax; sides narrowed backward from about middle (female) or before (male), tips conjointly rounded. Striae well impressed, but becoming weak toward apex; intervals convex toward base. Propleura without trace of

longitudinal impression. Mucro gently upcurved behind fore coxae, margined between. Sides of mesosternal cavity gently declivous. Hind coxal plate rounded at widest point, but not greatly produced.

Holotype, female (CM), western Carolines, Palau Is., Peleliu I., Aug. 10, 1945, H. S. Dybas. Allotype, male (US 62953), Palau Is., Babelthuap I., Ulimang, Dec. 1947, Dybas. (The aedeagus is mounted on a point attached to the specimen.)

PALAU. NGAIANGL (Ngajangel): Light trap, Dec. 1952, Gressitt. BABELTHUAP: Ulimang, Dec. 1947, Dybas; five, wooded peak southwest of Ulimang, Dec. 1947, Dybas; Ulimang, at light, Dec. 1947, Dybas; Ngiwal, Sept. 1951, Gressitt. KOROR: Two, southwest part, light trap, Dec. 1952, Gressitt, at light, Apr. 1954, Beardsley. NGERGOI (Garakayo): Beating vegetation, Aug. 1945, Dybas. PELELIU: Akarokuru, Aug. 1939, Esaki, July, Aug. 1945, Dybas, Aug. 1945, Ducoff. ANGAUR: Aug. 1945, Ducoff, July 1951, Gressitt.

DISTRIBUTION: Western Carolines (Palaus).

In addition, there is a specimen from Ngergoi (Garakayo) Island (Aug. 7, 1945, Dybas) which agrees perfectly with the rest of the series except in color; it has the head and pronotum dark castaneous, and the elytra are somewhat lighter castaneous with dusky suture.

This species is very similar to *A. sericeus* Candèze from the Philippines and Borneo but differs as follows: (1) the mucro is gently upcurved behind the fore coxae, not abruptly as in *A. sericeus,* (2) the angle of the hind coxal plate is less sharply produced in *A. dybasi* than in the other species, (3) the pronotum is less strongly convex in *A. dybasi,* and (4) the elytra are shorter in relation to the head and thorax in *A. dybasi* than in *A. sericeus.*

Unnamed genus and species

Among the Physorrhininae in the survey collection is a single specimen from Saipan in the Marianas (Kalabera area, beating vegetation, Jan. 28, 1945, H. S. Dybas) which differs markedly from related genera. Tarsal segment 4 is small and inconspicuous as in the rest of the subfamily, but tarsal segment 3, instead of being lamellate, is widely bilobed like the fourth tarsal segment in the pachyderine genus *Simodactylus.* The frontal margin of the head is entire, but it appears blunt in profile. The hind coxal plates are not prolonged behind as in the Pacific island *Anchastus,* but instead are subquadrate as in the California *A. cinereipennis* (Eschscholtz). Rather than base a genus on a possibly aberrant individual I defer its description until more specimens become available.

A single specimen of *A. cinereipennis* (Eschscholtz) was found in a plane arriving from Manila Nov. 30, 1937 at Sumay, Guam by R. G. Oakley. This California insect is not known to occur in either the Philippines or the Marianas.

CARDIOPHORINAE

Platynychus, with dentate tarsal claws, is the only genus of this subfamily known to occur in Micronesia.

Genus **Platynychus** Motschulsky

Platynychus Motschulsky, 1858, Études Ent. **7**: 58 (type: *Platynychus indicus* Motschulsky; Hindustan).

66. Platynychus adjutor (Candèze)? (Figure 11, *b.*)

Cardiophorus adjutor Candèze, 1873, Soc. Sci. Liège, Mem. II, **5**: 17 (type is believed to be in Brussels Museum).

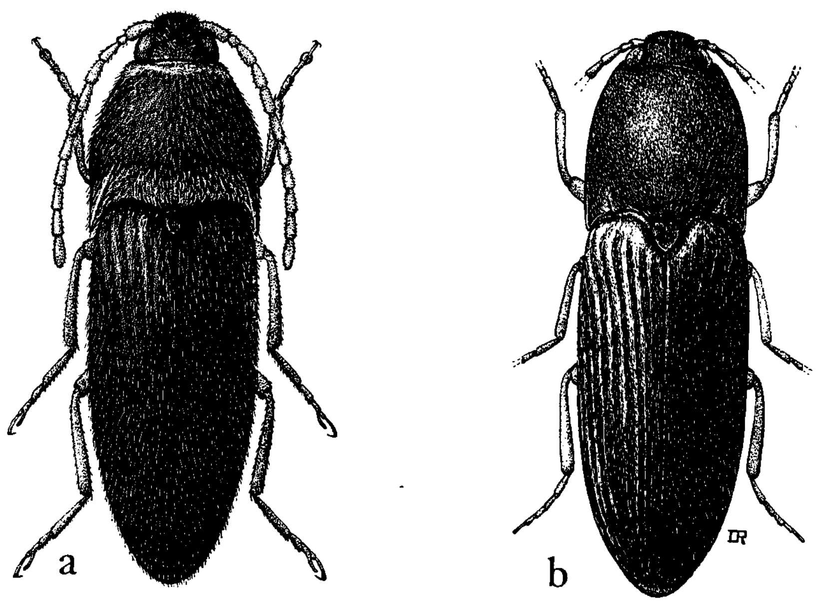


FIGURE 11.—**a,** *Anchastus trukensis,* Koror; **b,** *Platynychus* sp. (probably *adjutor*), Chichi Jima. (*b,* the only specimen in the survey collection, lacks most of its legs.)

Paracardiophorus adjutor, Schwarz, 1893, Duetsche Ent. Zeitschr. **1893**: 37.

Platynychus adjutor, Miwa, 1934, Gov. Res. Inst., Formosa (Taiwan), Dept. Agric. Rept. **63**: 97.

DISTRIBUTION: Formosa, Okinawa, Korea, Japan, Bonins.

BONIN IS. CHICHI JIMA: Omura, May 1925, Daito.

The claws, whereby the generic position could be verified, are completely missing from a Bonin specimen in the survey collections. However, this in-

dividual agrees so perfectly with Japanese examples of *P. adjutor* that I am convinced it is the same. It is obviously an immigrant into the Bonins.

MELANOTINAE

Neodiploconus is at present the only genus of this subfamily recorded from Micronesia. However, the possibility that *Melanotus*, a genus widespread in the Philippines and in the New Guinea-Moluccas area, may also be found in the western Carolines, prompts the inclusion of *Melanotus* in the generic key which follows:

Key to Micronesian Genera of Melanotinae

Prosternal sutures excavate anteriorly; a short sulcus on hind margin of pronotum, mediad of hind angles .... **Melanotus**
Prosternal sutures completely closed; no sulcus on hind margin of pronotum .... **Neodiploconus**

Genus **Neodiploconus** Hyslop

Neodiploconus Hyslop, 1921, U. S. Nat. Mus., Proc. **58**: 658; new name for *Diploconus* Candèze, 1860, Monogr. Élat. **3**: 290; preoccupied (type: *Diploconus peregrinus* Candèze; Borneo).

Key to Micronesian Species of Neodiploconus

Sides of mesosternal cavity subhorizontal posteriorly; outer face of antennal segments longitudinally carinate (Palaus, Yap, Ulithi) .... **exilis**
Sides of mesosternal cavity gently and evenly declivous; antennal segments not carinate on outer face (Bonins) .... **boninsis**

67. Neodiploconus exilis Van Zwaluwenburg (fig. 10, *e*).

Neodiploconus exilis Van Zwaluwenburg, 1940, B. P. Bishop Mus., Occ. Papers **16** (5): 126 (holotype male in Bishop Museum).

DISTRIBUTION: Western Carolines (Palaus, Yap, Ulithi).

PALAU. 1935, Yoshino. Babelthuap: Ulimang, four, Dec. 1947, Dybas; wooded peak southwest of Ulimang, Dec. 1947, Dybas; Ngerehelong, Dec. 1947, Dybas; east Ngatpang, 65 m., light trap, Dec. 1952, Gressitt. Koror: Ngarabaged (Arabaketsu), Apr. 1938, Murakami, July 1936, Townes, Nov. 1948, Dybas, two, Feb. 1949, Ross, and five, under bark, Apr.-May 1949, Langford; Ngarmid, Aug. 1949, Mead, Nov. 1951, Gressitt, and at light, Aug. 1952, Beardsley. Peleliu: 1945, Dorsey, July 1945, Dybas, two, east coast, July 1945, Dybas, two, Aug. 1945, Dybas, Aug. 7, 1945, at light, Ducoff, east coast, Jan. 1946, and July 1948, Dybas; Mt. Amiangal, light trap, Dec. 1952, Gressitt.

YAP. Yap I.: Ruul, Sept. 16, 1939, Esaki; two, Kanif, July-Aug. 1950, Goss; Tabiwol (Mt. Gillifitz), 150 m., Nov. 1952, Gressitt; hill behind Yaptown, Dec. 1952, 50 m., light trap, Gressitt.

CAROLINE ATOLLS. ULITHI: Mogmog I., under bark of dead *Artocarpus altilis* (=*incisus*), July 1946, Townes and Oakley; Potangeras I., Nov. 1947, Dybas.

This species is closely related to *N. erythropus* (Candèze) from the Moluccas, but the two are distinct. Through the courtesy of H. Boschma, Curator of the Royal Museum of Natural History in Leiden, I have examined the four specimens mentioned by Candèze in his description of *Diploconus erythropus* as being in Leiden. A female, which conforms closely with Candèze's description, I hereby designate as the lectotype of *Diploconus erythropus* Candèze, 1865, and have so labeled it. A second specimen proves to be a female of *Melanotus ebeninus* Candèze, 1860, described from the Philippines. A third specimen is a male, but unfortunately dermestids have destroyed the aedeagus; a fourth specimen, also attacked by dermestids, is a female. All four specimens have been labeled as to sex and returned to the Leiden Museum. The aedeagus of *N. exilis* is extremely similar to that of a male believed to be *N. erythropus* from Larat in the Timor Laut group southwest of New Guinea. Externally the species can be separated by these differences:

N. erythropus	N. exilis
1. Disc of head strongly convex anteriorly	Disc of head flat; anteriorly concave immediately behind fore margin
2. Prothorax relatively more elongate, with sides more strongly narrowed anteriorly than in *exilis*	
3. Punctures on pronotum rather widely separated	Punctation on pronotum of about same size as in *erythropus,* but more closely spaced

Specimens of *N. exilis* from Yap and Ulithi vary from the typical form by slight differences in punctation and in the emargination of the tips of the elytra.

68. Neodiploconus boninsis Van Zwaluwenburg, n. sp. (figs. 10, *f;* 12, *a*).

Length, 9.0-9.25 mm.

Short, shiny. Head and pronotum black, with fore margin and hind angles of the latter rufous, elytra darkly rufous; appendages lighter red. Pubescence tawny, fine, inconspicuous.

Front of head flat, with vague impression on middle; frontal margin broadly rounded, slightly reflexed; punctation coarse. Antennae slender, subserrate beginning with segment 4; long, exceeding tips of hind angles of prothorax by at least two segments (male); 3 half as long again as 2, the two together shorter than 4; 4 to 10 increasingly slender; segments not carinate on outer face.

Prothorax (measuring hind angles) longer than wide; sides subparallel on basal half, thence rounded to fore margin. Pronotum moderately convex, disc flattened; basal slope gentle, shallowly grooved on middle, hind angles divergent, slender, bicarinate. Punctation on pronotum coarse toward sides, finer, sparser on disc, and weak but still visible on basal slope.

Scutellum oval, disc convex, tip faintly excavate; rather finely punctulate.

Elytra as wide across humeri as prothorax; sides narrowed backward from about basal one-third; apex entire, conjointly rounded, a short mucro at sutural angle. Striae well impressed; intervals convex, rather coarsely punctulate. Mucro gently upturned in smooth curve behind fore coxae. Sides of mesosternal cavity gently declivous, not prominent.

Holotype, male (US 62956), Bonin Is., Haha Jima (Coffin I.) June 29-July 2, 1949, A. R. Mead. (The aedeagus is mounted on a point attached to the specimen.) Paratype, male, Bonin Is., Muko Jima (Parry I.), June-July 1949, Mead.

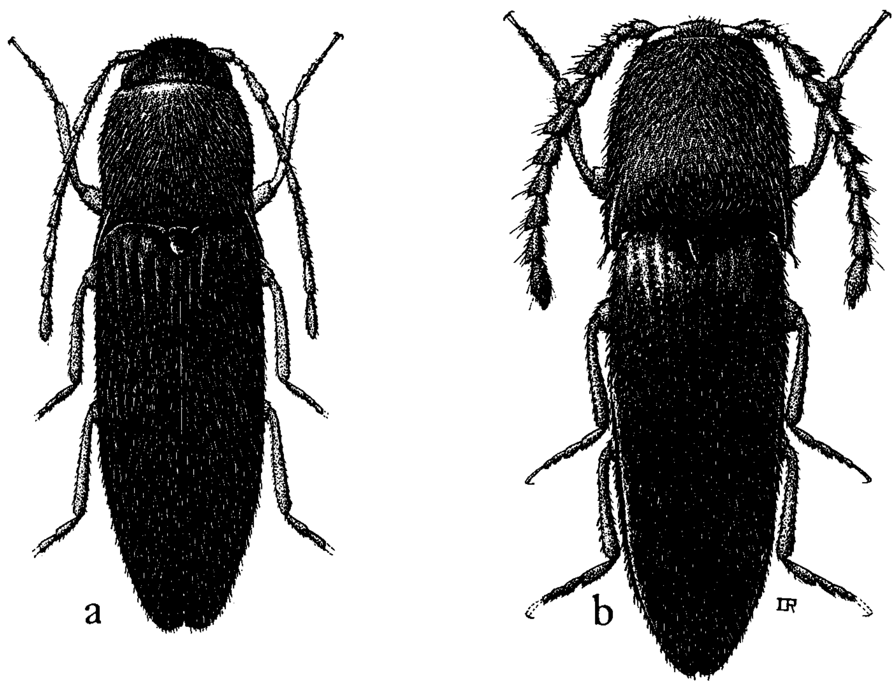


FIGURE 12.—a, *Neodiploconus boninsis*, holotype male, Haha Jima; b, *Neotrichophorus erubescens*, Babelthuap.

DISTRIBUTION: Bonins (Haha Jima, Muko Jima).

In the holotype there is a short, weak median carina on the upper part of the head; this is not visible on the paratype.

I can discover no close relatives of this species in the genus. It has some characters in common with certain Philippine species, particularly *N. coxalis* Fleutiaux, but *N. coxalis* has the prothorax much more elongate than in *N. boninsis*.

ELATERINAE

The only genus of this subfamily known to occur in Micronesia is *Neotrichophorus*.

Genus **Neotrichophorus** Jacobson

Neotrichophorus Jacobson, 1913, Käfer Russ. **10**: 742; new name for *Trichophorus* Mulsant, 1838, Opusc. Ent. **2**: 181; preoccupied (type: *Trichophorus guillebelli* Mulsant; Europe).

69. Neotrichophorus erubescens (Candèze). (Figure 12, *b*.)

Ludius erubescens Candèze, 1878, Élat. Nouv. **2**: 46 (type is probably in Brussels Museum).

DISTRIBUTION: New Guinea (type locality), western Carolines.

PALAU. BABELTHUAP: Ulimang, Dec. 1947, Dybas. PELELIU: Aug. 1945, Dybas.

Two specimens in the survey collections from the Palaus agree perfectly with a specimen of *N. erubescens* from Hollandia, New Guinea.